



Directorate for Education

Centre for Educational Research and Innovation (CERI), OECD

Innovative Learning Environments (ILE)

INVENTORY CASE STUDY

The Jenaplan School of Jena

Germany (Thuringia)

This school is closely connected to the ideas of reform pedagogy and has influenced many other schools in Germany. Kindergarden, primary school, and different levels of secondary education for students aged 3 to 19/20 are included. All students are integrated in mixed aged groups, also those with minor physical and/or learning difficulties. Teachers cooperate in teams, including team-teaching and peer-coaching among teachers. Students learn partly in cross-grade and partly in homogenous age groupings, in different work forms including student oriented and open learning and interdisciplinary project work that are organized with individual week plans. The schedule is periodic with a focus on changing subjects every 3 to 4 weeks in areas like history or geography. School days and weeks are structured by recurring routines, like a morning assembly and an end-of-week meeting. Written reports and portfolios are used to replace or supplement traditional grading, and emphasis is placed on students' peer- and self-assessment. The school has 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.

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ILE "Innovative Learning Environments"

A project of the OECD / CERI

Supported and funded by the
Thuringia Ministry for Education, Science and Culture
Thuringia, Germany

Case Study: **The Jenaplan School of Jena**

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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. All these selected 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. Therefore, elements of this system will be concisely described, as follows.¹

The Jenaplan School may be characterized as innovative school because of the specific pedagogical concept and organizational structure. The aim of the pedagogical concept of the Jenaplan School is to give all students, teachers, and parents the experience that democracy is not only a system of government but also a way of life and learning. Teachers, students, and parents developed a culture of learning and working which depends crucially to the priority: "create more freedom to give the opportunity to learn from own mistakes". A culture of constructive criticism was established that makes experiences of communication and cooperation possible. Especially the students experience community instead of competition.

According to the idea of inclusion, Jenaplan School is organized as a comprehensive school for all children independently from their social background, mental or behavioral disabilities. By the integration of an own Kindergarten (for children from age 3 to 6) and an own primary school, the Jenaplan School combines the different phases of institutionalized education from the early childhood up to adolescence.

Instead of the traditional arrangement by school subjects, students of the same age in classrooms, and teaching units of 45 minutes, the Jenaplan School is characterized by mixed age learner groups, open and individualized learning situations in various innovative learning environments. The following report illustrates the characteristics of this innovative learning environment in more detail.

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 students from the innovative learning environments, as well as

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>

others (parents, school social workers, etc.). All persons interviewed, could also put questions and answer free-style. The interviews at the Jenaplan School 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 teachers and students 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 students´ 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 Jenaplan School

The Jenaplan School is located in the city of Jena. The city has 103,756 inhabitants at the time of the investigation. Regionally speaking, the city of Jena possesses a relatively well-developed economic and educational infrastructure. The rate of unemployment in December

of 2010 was 8.3%, a comparably low figure. Jena is considered to be a “dynamic region” according to results of the Prognos study from 2010 (Prognos-future atlas, 2010).

In accordance to the concept of inclusion, the Jenaplan School is a school for all children regardless of social background and talent. The Jenaplan School is a comprehensive school (“Gesamtschule”) which also integrates learning-disabled and handicapped children, and those with problematic school biographies.

At the Jenaplan School all possible school graduation certificates available in the state of Thuringia can be acquired, including the not yet mentioned special-needs school graduation certificates. The educational courses of study are not externally differentiated through courses or classes, but internally within the classroom instead. Therefore, the concept of the Jenaplan School goes a step further than other traditional and pedagogical concepts of other comprehensive schools (Gesamtschulen) in Thuringia. In addition, the elementary/primary school and preschool/kindergarten are also integrated into the educational concept of the school. Moreover, there is not the classical division into class years or levels. The following table describes the arrangement of learners into mixed age learner groups at the Jenaplan School:

Highest level			
11th / 12th grade		13th grade	
Upper groups			
10th grade			
Chinchillas	Pumas	Skorpions	Dingos
Middle groups			
Dolphins	Hawks	Kangaroos	Wolves
Sub-groups			
Bears	Hedgehogs	Moles	Penguins
Preschool group			
Sparrows			

Table 1: Organization of mixed age learner groups at the Jenaplan School (Each group is named after an animal.)

Preschool group (2 – 6 years of age),
 Sub-groups (1st – 3rd school year),
 Middle groups (4th – 6th school year),
 Upper groups (7th – 9th school year, 10th school year) and
 Highest level (11th – 13th school year)

This structure is only possible because of the special historical development of the school (see point 3.1.5). 448 children from the preschool onwards the final graduating class (ages 3 to 20 years) are learning at this school. In addition, 48 teachers, eight early childhood educators, and five student assistants, one administrator, one janitor/caretaker, one school worker, and two civil service persons are employed at the school. Seven teachers and ECE teachers have been working at the school from its inception. Generally, more students apply for enrolment than the school has room for: out of 140 applications each year, only 32 can be placed.

3.1.2 Philosophy and aims of the school

The aims of the Jenaplan School are closely connected to its philosophy based on Reformpädagogik (reform pedagogy). These aims can be described as follows: the student is the center of interest; learning is seen from the eyes of the child. New ways of learning are revealed without the involvement of a numeral grading system and the pressure of competition. The main focus is that the students learn how to learn – this within the framework of mastering learning content. The Jenaplan School is a school for all children, without differentiation regarding students' achievement, social background, or disabilities. The school ² offers a wide range of school certificates/diplomas. The school is characterized by a common learning practice for preschool children up to the highest secondary school class (Abiturienten) as well as by a mixing of school grades/classes within one classroom. The Jenaplan School is an open school with organizational structures and teaching content which allow for spontaneous, individual, social, and criticism-related learning.

The school focuses on the idea of autonomy in learning, respecting one another's ideas and the intensive work on enhancing a learner's individual development. The learner is seen in his/her entirety, whose needs and various abilities are to be discovered, considered and enhanced. In order to do this, different forms of individualization within the classroom arrangements are to be realized. For the child's development of his own identity, he/she needs to build a relationship to the sensually discernible world of objects and people. Besides the relationship to objects, the interaction of the individual with his social environment plays a role in the development of his identity and personality. The school is convinced that experiences of human beings need freedom and social interaction for development. This understanding was not only to be observed in the contact of the students together, as well as with the teachers, but also clearly perceptibly. These principles are alive at the Jenaplan School.

3.1.3 Professional understanding of the tasks of a teacher

The content analysis of the interviews conducted with the school's director, as well as with the teachers revealed that they all had similar views on what the tasks of a teacher would be. The most important aspect is to be "authentic" as a teacher. The role of a teacher was primarily regarded as a skilled mentor and coordinator. Thereby, the teacher has a "particular idealism" and is willing to invest a lot of effort and time into this school. "We are living with the school" (school director; teacher). The teacher is thus seen more as a mentor and adviser in the learning process of the children, viewing the child's individuality from kindergarten age up to graduation. As a person to be trusted, the teacher provides support, and intervenes in students' self-determined learning process only, if needed. Developing and making adaptive learning materials available to support students' various skills and levels of competence are a big challenge for teachers. Especially in the mixed age learner

² There are several forms for differentiation in school context. Outer differentiation means for example the ability grouping. Outer differentiation stay therefore in contrast to internal differentiation how can see in forms like individual support, project teaching, week-plans, free-work and workshop's work (Ministerium für Kultus, Jugend und Sport Baden Württemberg, 2009).

groups, the teacher is a partner for the students during an entire 3-years period. The teachers at Jenaplan School are glad to have the option to choose between various teaching styles. Finally, the colleagues are always ready to help and support each other. The teachers at that school regard themselves as a 'real team'. They point out that combining several peoples' ideas to look for a solution is very important. They see the teamwork as their task to produce together pedagogical progress. A culture of learning and working was developed at the school which lead to intensive cooperation. This enables the teachers to learn from each other and to further develop their work. This is realized by regular meetings, such as team conferences where the teachers from all class/grade types take part (e.g. elementary, secondary school I and II). In the weekly team meetings, the teachers collect important topics for the upcoming week-plan. Important subjects, materials, and methods are provided.

Important here is that:

- the tasks are corresponding to the requirements of the students,
- that there are different tasks on different achievement levels to the same topic,
- and, that there are additional tasks for high-achieving students.

All school participants use intensive communicative and cooperative skills; especially the learners experience a strong sense of community rather than an atmosphere of competition.

3.1.4 Pedagogical concept

The pedagogical concept of the Jenaplan School of Jena is based upon the reform-pedagogical practice of the so-called Jenaplan of Peter Petersen (1927). The "Kleine Jenaplan" (or little Jenaplan) (Petersen, in 1927/1996) which was tested, used and further developed by today's Jenaplan School, now forms the backbone to the school's pedagogical practices. Among the consequences is the presence of mixed age group classes ("jahrgangsgemischter Unterricht"). During the 1990s, when the school's concept was renewed, this aspect was a challenge for the teachers due to its being an uncommon way to teach and learn; it required a new way of thinking and acting on their part. Pedagogical concepts were further developed, which brought with it an enhanced degree of teacher professionalism.

"Jenaplan Schools should always be schools for children regardless of their talents and social background. They should not only include talented and gifted children, but also learning- and physically disabled children, as well as those with behavioural problems or those with problematic school biographies. This is a main principle of our school which was taken over from the historical "Jenaplan". All students learn together without external differentiation, whether they learn in mixed grade-groups and same grade-groups. Like Peterson described it in his "little Jenaplan", the Jenaplan Schools in Jena always focused on the differences within the learning groups, thus focusing on the individual, allowing for one's own personal way of learning. This view of the individual child is the main focus of pedagogical practice and is in a sense mandatory in lieu of mixed-grade classes which are part of the school's learning culture. This is what Peterson meant when he described this situation as "the bankruptcy of the

single- grade class". Finally, the Jenaplan School of Jena goes far beyond the publicly known concepts of schools of inclusion. The following insight is crucial: The mixed-grade groups and joint learning involving students with varied abilities are not a hindrance but performance- enhancing, since all children can learn without the pressure of competition in an environment where they can encourage each other and spur each other on."

(Gisela John, former director of the Jenaplan School during a panel discussion about the Jenaplan's pedagogical concepts on October 26, 2009 in Jena)

3.1.5 History of the establishment and development of the school

The establishment of the Jenaplan School in Jena can be traced back to the social resistance period in former East Germany in the autumn of 1989. At that time, a group of pro-reform teachers and parents aimed to establish a promising new way of educating students. Thus, the Jenaplan School was founded in September of 1991 by teachers and parents, who, along with their newly given political liberty in this part of Germany, sought to provide a common place of learning for students from all kinds of educational backgrounds. This was 19 years ago.

The school has developed within this period from 6 grade levels at first (in 1991 from the kindergarten level up to the 6th grade) to the "Abitur" level. The Jenaplan School was a publicly-approved trial school in Thuringia, and was in the summer of 2006 given the status of a "normal" school type. The currently applied school practices, including those involving performance diagnostics and evaluation, have been maintained and are accepted by Thuringian educational law.

In 2000 the Jenaplan School received a not renovated former secondary school building. The building and premises are located in the southwest border of downtown Jena near the university of applied science (Fachhochschule), as well as the industrial and science centers of Carl Zeiss Jena and Schott Jena. The school was established between 1927 -1929 in a functional structure in the "Bauhaus" style of construction. The house is flooded with light and has a generous amount of space despite its need for renovation, thereby being well-suited for the Jenaplan School. It also contains a gymnasium and a sport field. Both sports sites are used jointly with the neighboring elementary school. At the end of school year 2004/05 a "playground and recess area" on the formerly asphalted playground could be handed over to the students. This project was realized due to five years of volunteer work done by representatives of the school, parents and municipal offices. In addition, four new workrooms, a celebration and theater room and a seminar room were added to provide for recurring visitors to the Jenaplan School. In February of 2011, the school temporarily moved into another building in order for restoration work to be completed.

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

When arriving at the Jenaplan School, the space for creativity and participation attracts visitors' attention. In the halls and in the various classrooms one meets numerous exhibitions displaying interesting and creative students' work. The entire school seems to be a playground for self-determined, growing young persons. Special mention must be made to the dreamlike outside areas, the so-called "School Break Dream", a fantasy-like landscape which is based on student ideas since the year 2000. Promoted by the school's social worker, students' ideas were collected. The "school recess dreamers" constructed models and discussed rational uses for the school yard areas, honoring student needs. Since that day, the "school recess dream" has continuously developed.



Figure 1: The "School Break Dream"³ is a project where parents and students get involved. Democracy and participation are not only taught but also lived on a high level.

Student participation

The active designing of the school by students as a living and learning space is an important part of school life. The already mentioned cooperation of the school break dream project is one example. In addition, student participation regarding the design/arrangement of other school rooms is worth mentioning. School projects are organized, discussed and carried out by students themselves. These students work

³ The "school break dream" is a play on words: the German word "Traum" means dream and includes the word "Raum" (space / room), so it means a place, where students can spend their free time.

engagingly and with great enjoyment on the projects. During and after lessons, older students take responsibility for younger students, and vice versa. This is not only due to the already mentioned mixed-age learning groups (Stammgruppen) as a central conceptual element of the Jenaplan School. Taking over responsibility for others and oneself is also reflected in the choice and realization of the instructional and leisure time offerings, as well as in the student assessment evaluations.

Parental participation

The Jenaplan School requires and counts on the active cooperation of parents. Monthly round table meetings give parents the opportunity to discuss group-specific problems with the teachers. Regular discussions and consultations between parents and teachers help support the child's individual development. Parents are even invited to get involved during instruction in various ways. Parents can also help with the design and management of classrooms, learning materials and the school building. Even the care of the outdoor facilities and the school garden is done with parental support. The school also encourages parents to cooperate with other parents and their children outside of the classrooms in teams. These few examples illustrate the relevance of parental work and cooperation at this school. Finally, the parent involvement lead to a newspaper called the "Parents Circle ", published by mothers and fathers to continuously inform the public about new goals and activities of the school.

School cooperation with other institutions and partners

The Jenaplan School represents a cooperative school for the entire city and region, cooperating with various institutional partners in the city and region. Working together with numerous partners demonstrates the cooperative willingness of the school and the desire to create common values. Among others, the following partners in the social, cultural, and economical contexts should be mentioned: Goepel electronics, the Planwerkstatt, the Schiller House, the Romantic House, the One-World-House, the Public Radio Channel Jena, the public cinema in the Schillerhof, Kommunal Real Estate Office of the City of Jena, the Ernst-Abbe Public Library, the University of Applied Sciences Jena, the EJBW, the Protestant Adult Education Thuringia, the Philosophia e.V., the Imaginata, the Heritage Office, the City Museum Göhre, the Diskurs e.V., Grund genug e.V., the Theater House Jena and the German National Theatre in Weimar. Since January of 2000, international contacts between students of the Jenaplan School and the school "Corazón de Jesús" in San Marcos, Nicaragua, for example, were established.

Furthermore, the Jenaplan School participates in different networks, for example BÜZ ("Blick über den Zaun") – "View Over the Fence" (since 2004). From 2002 to 2007, the school participated in the BLK-cooperation project "Democratic Living and

Learning" and was nominated as a "School without Racism - School with Courage" in 2009.

Internal and external evaluation of the school

A culture of learning and work at the school was developed by the cooperation of teacher teams. Thus, mutual supervision and consultation among teachers is a given at the school. The teams work independently and also receive the necessary freedom to make decisions by the school management. Every person is self-motivated, since his/her own opinion is important and taken seriously by all participants. One representative per team works in a coordinating group which consults weekly. Together with the school management, school-organizational and content questions are decided upon here. In this way, upcoming or made decisions become clear and understandable for all. Once a year, the teachers and school employees meet for a closed meeting to work on current problems and issues. The result of these intensely run discussion groups are comprehensive and substantial ideas, newly formulated plans and agreements made, all contributing to the advancement of the school. In this context, future goals are regularly updated.

The school's concept of evaluation and development is consistently well thought out from the instructional to the school developmental levels. In addition, evaluations of all of the school's aspects are organized and carried out by two external observers on a regular basis. For evaluation purposes, specific questions are raised in advance and possible areas of focus for the school's development are discussed with the entire school staff.

A further external evaluation concept is connected with the aforementioned "View Over the Fence" (BÜZ). Mutual partner visits as "critical friends" support the promotion of the school's development. For this purpose, clear goals of observation are formulated which target school problem areas. The final evaluation discussions are characterized by honesty and openness, an interest in other partners and a common search for solutions. In addition, the school is regularly visited by many guests (teachers, students and researchers) from the region and foreign countries. In such a context, the Jenaplan School in 2003 and in 2004 received an important German award, the Theodor-Heuss Medal. In 2006, the Jenaplan School received one of the most coveted awards based on school quality, the "German School Prize" of the Robert Bosch Foundation and the Heidehof Foundation.

3-year rhythm curriculum cycles

According to the altered school year structures and in keeping with the basic philosophy of the Jenaplan School, a custom-made curriculum has been developed based on a 3-years cycle. The cycles are oriented according to the division into sub-group, middle group, and upper group. The following tables show examples of the

school's curriculum (abbreviations: SF = social form; EA=Einzelarbeit (individual work); PA=Partnerarbeit (partner work), GA = group work):

2008/2009	2009/2010	2010/2011
Alphabet Games the grandparents played	Again in School Our learning group animal	School beginning Family
The Apple Autumn weather	Traffic rules	My home city of Jena The seven wonders
Our school moves	Friedrich Schiller	The potato
Theater project	Thermometer/ Autumn/ Autumn fruits	Autumn/weather and wind
Children's chosen topic	Theater project	Theater project
Personal hygiene Sickness prevention	Healthy eating habits Our teeth	Work stations „The Senses“
Lyrics	The desert	Darkness/Ghosts
Christmas, Thuringia Customs and Project Day	Work stations „Fairy Tales“	Europe
Freely chosen Theme	The universe	Calender/Christmas
The „I „- Book (the book about me)	Freely chosen theme	Freely chosen theme
Work stations „Time“	The „I“ - Book	The I-book
Experiments - mealworm	Trees in winter	Forest/Tracks/Hike with the forest ranger
Freely chosen theme	Compass, magnets the four points of the compass	Firefighters/ Police
School project week	Trees in winter	My favorite book A visit to the library
Birds in spring	The meadow	Spring plants
My favorite book	My favorite book How are books made?	The media

Pets	Freely chosen theme	Freely chosen theme
	The ocean	Life in and on the pond
		The bike

Table 2: 3-years rhythm of topics for the sub-group

2008/2009	2009/2010	2010/2011
Children's literature <i>(reading of a teacher-selected book, creative work)</i> Fables (Characteristics of fables, creative work) Theater	Children's literature (The author <i>E. Kästner</i> und introduction to his children's book: creative writing) Fabeln <i>(Characteristics of fables, creative writing)</i> School project week	Children's literature <i>(self-chosen reading of a book; creative writing)</i> Fairy tales <i>(... also writing them)</i> Lyrics (writing a poem) School project week
Makeup, function and hygiene of the human body <i>(presentation, models, experiments)</i> Materials that humans use (Investigating the media) <i>(Poster, Rally)</i>	Invertebrates in their living surroundings (genealogical tree as a form of order) Plants feed the world <i>(Categorizing, ordering, drawing, mind map, presentation)</i>	Vertebrates In their living surroundings (drawing, naming) Raw materials that regrow <i>(Categorizing, ordering, drawing, mind map, presentation)</i>
Beginnings of Man – the Stone Age Stone Age <i>(Exhibition, museum table, rally)</i> Roman Empire with	Ancient Egypt <i>(Exhibition, Museum table, rally)</i> Ancient Greece <i>(Writing a text after the assembly of facts: report,</i>	Germanic Tribes <i>(Exhibition, museum table, rally)</i> (3rd German project, see above)

investigation with media (keywords, designing pages with the PC)	<i>live report, letter)</i>	
Nature project Floating, swimming, sinking (<i>observing, displaying, learning about phenomena, recognizing basic laws of nature</i>)	Nature project Optics- learning about light (<i>observing, displaying, learning about phenomena, recognizing basic laws of nature</i>)	Nature project Simple machines (<i>observing, displaying, learning about phenomena, recognizing basic laws of nature</i>)
Extreme Living environments (<i>from the word family collection/ Material collecting based on history, reading</i>)	Discovering the forest using media (<i>Nature observations, drawing, measuring, taking notes, determining</i>) Power Point presentation	Germany's national parks using media (<i>presentation with keywords</i>)
E: Christianity R: King David (<i>marionette-building</i>) E: Happiness and Pain (<i>design of a booklet</i>) R: The Bible	E: Myths (getting to know myths and use them creatively) R: Abraham E: Judaism R: The Exodus (Notebook workshop/Sederfeier)	E: Riddles of life – the time R: Jesus's birth (<i>creche-building</i>) E: media in daily life R: the Passion of Jesus
Self-chosen theme (free choice of presentation form)	Self-chosen theme (free choice of presentation form)	Self-chosen theme (free choice of presentation form)

Table 3: 3-years rhythm of topics for the middle group

2008/2009	2009/2010	2010/2011
German The Romanesque Period Basic knowledge of this literary period Production of a piece of program literature SF: GA	German Medieval Literature Basic knowledge of this literary period Production of a piece of program literature SF: GA	German The Classical period Basic knowledge of this literary period Production of a piece of program literature SF: GA
German	German	German

<p>Written reports Argumenting Researching How to construct a report Writing an essay on a self-chosen theme SF: EA</p>	<p>Written presentations Argumenting Researching How to construct a report Writing an essay on a self-chosen theme SF: EA</p>	<p>Oral reports/ debates Argumenting Researching Learning how to make a speech Debate SF: GA</p>
<p>German Pragmatic texts Getting to know newspaper text types Practicing this knowledge</p>	<p>German Pragmatic texts Getting to know newspaper texts –specific writing Practicing this knowledge The making of a newspaper SF: EA o. GA (frei)</p>	<p>German Pragmatic texts Getting to know newspaper text types – specific writing Practicing this knowledge The making of a newspaper SF: EA o. GA (frei)</p>
<p>History The Industrial Revolution <i>effective information extraction from specific/technical texts</i> <i>Learning poster</i> <i>A GalleryTour</i> SF: GA (mixed age group)</p>	<p>History Time change <i>Creating a „Wanted“ poster</i> <i>Presentation</i> SF: PA (mixed age group)</p>	<p>History Absolutism <i>Creating a history box</i> <i>Presentation</i> <i>Creative work with historical sources</i> SF: GA (mixed age group)</p>
<p>Nature Optics <i>Experimenting</i> <i>Recording information</i> <i>Presentation</i> SF: PA (mixed age group) GA</p>	<p>Nature Weather Poster</p>	<p>Nature Natural phenomena (freely chosen subject in nature)</p>
<p>Nature Ecology</p>	<p>Nature Seed plants</p>	<p>Nature Humans</p>

<p><i>Creation of a scheme</i> <i>Giving a free speech</i> SF: GA (mixed age group)</p>	<p>Creation of a biological drawing Building a model Using a microscope</p> <p>Presentation SF: GA (mixed age group)</p>	<p><i>Creation of a „Book on Health“</i> <i>Experimenting</i> <i>Presentation</i> SF: GA (altersgemischt)</p>
<p>Nature Organics</p>	<p>Nature Organics</p>	<p>Nature Microbiology <i>Biological drawing</i> <i>Model building</i> <i>Using a microscope</i></p>
<p>Religion / Ethics</p>	<p>Religion / Ethics</p>	<p>Religion / Ethics</p>
<p>Religion / Ethics</p>	<p>Religion / Ethics</p>	<p>Religion / Ethics</p>

Table 4: 3-years rhythm of topics for the upper group

<p>Single grade history project Grade 7 Daily life and life forms in the Middle Ages</p> <p>Learning at Stations <i>Creation of a play scene</i> Excursion to the Wartburg SF: EA, GA</p>	<p>Single grade history project Grade 7 Daily life and life forms in the Middle Ages</p> <p>Learning at Stations Creation of a play scene Excursion to the Wartburg SF: EA, GA</p>	<p>Single grade history project Grade 7 Daily life and life forms in the Middle Ages</p> <p>Learning at Stations Creation of a play scene Excursion to the Wartburg SF: EA, GA</p>
<p>Single-grade history project Grade 8 The French Revolution</p>	<p>Single-grade history project Grade 8 The French Revolution</p>	<p>Single-grade history project Grade 8 The French Revolution</p>

<p>Single-grade history project Grade 9 The First World War</p> <p>Weekly Plan Work Design of an anti-war monument or freely-chosen related theme</p> <p>Presentation SF: EA + GA or The Nazi Period</p> <p>Portfolio Work</p>	<p>Single-grade history project Grade 9 The First World War</p> <p>Weekly Plan Work Design of an anti-war monument or freely-chosen related theme</p> <p>Presentation SF: EA+ GA or The Nazi Period</p> <p>Portfolio Work</p>	<p>Single-grade history project Grade 9 The First World War</p> <p>Weekly Plan Work Design of an anti-war monument or freely-chosen related theme</p> <p>Presentation SF: EA+GA or The Nazi Period</p> <p>Portfolio Work</p>
<p>Single-grade Nature Project Grade 7 Speed/Velocity</p>	<p>Single-grade Nature Project Grade 7 Speed/Velocity</p>	<p>Single-grade Nature Project Grade 7 Speed/Velocity</p>
<p>Single-grade Nature Project Grade 8 Sexuality</p>	<p>Single-grade Nature Project Grade 8 Sexuality</p>	<p>Single-grade Nature Project Grade 8 Sexuality</p>
<p>Social studies/media technology</p>	<p>Social studies/media technology</p>	<p>Social studies/media technology</p>

Table 5: Further regular projects

Mathematic Lessons in the Middle Group

First Year	Second Year	Third Year
<p>Work on the „Number islands“ (Showing natural-, negative- and decimal numbers as well as fractions)</p>		
<p>Primary numbers</p>	<p>Binary and other numeral systems</p>	<p>Roman numbers</p>
<p>Work on the „Learn paths“ (Calculating with natural numbers and with fractions)</p>		
<p>Angles</p>	<p>2-D figures and bodies</p>	<p>Movements</p>
<p>Work on the „Learn paths“</p>		
<p>Sorting assignments</p>	<p>Data and chance</p>	<p>combinatorics, terms, equations</p>

Work on the „Learn paths“
Work with amounts/size/ calculation of surfaces and volumes (6th graders use decimal numbers)

Table 6: Mathematics Lessons in the Middle Group

3.2.2 The organization of learning and teaching

The Jenaplan School organizes school subjects, teaching time, and learning groups differently than is generally usual in the Thuringian, as well as in the German educational system. Instead of structuring the content in terms of subjects, organizing division based on grade year, as well as the rhythmization into short hour units of 45 minutes, as is often the case, the Jenaplan School open student-oriented learning situations are used, making students' individual learning possible. Students learn in mixed-age learner groups which also include children with special needs. Thus, students have a variety of opportunities in the school's daily life which enable to them to plan, realize, and control their learning process independently. This openness of instruction allows them to mutually stimulate themselves, support each other during the learning process, acquire multiple competencies in group or single work, and to experience cooperation instead of competition. By that, the Jenaplan School supports the students in **self-regulated learning**. Older students can work together with younger students without embarrassment, and in doing so, they repeat and review learning material they already works with. Students demonstrate and live a culture of mutual helping. For students, it is absolutely normal to acknowledge their different strengths alongside each other.

Another way of the organizing learning and teaching at the Jenaplan School are the **mixed-age learner groups**. Working in such mixed-age learner groups offers huge advantages. School beginners grow starting from the first school day into an already existing group tradition. They can be involved socially in various ways. The specific role of the teacher has been outlined already above (see p. 5). The students who remain in the family group take over new responsibility and communicate traditions to the younger students. Thus, new friendships can be developed. Due to the various age-related learning conditions, many natural learning situations are created. Students learn to be tolerant to others due to shared experiences, varying performance abilities and different learning tempi.

The children of the sub-groups (1st to 3rd years) are introduced to the project work and must get acquainted with basic procedures. Thus, they work during their family group time mainly according to weekly plans (see point 3.2.1). Seven teaching hours per week are available to the children for work on the weekly plan. The subject areas are taken from the curriculum or the from experience areas of the children. In addition, the students can formulate topic wishes at the beginning of the school year, thereby exerting influence on the contents of family group work. During weekly teacher team meetings of the sub-groups, main points of focus, important contents, methods, as well as weekly plan materials are assembled, and discussed. A colleague organizes the complete weekly plan. During this process, it is important to keep the students' abilities in mind when organizing the assignments. Different types of assignment within a subject or topic designed, taking high and low achievers equally into account.

First-year students are gradually trained in the work with the weekly plan. First, they work with a clear timetable and make their experiences with the weekly plan. In addition, the students get to know the principle of self-control. They learn to check which assignments have already been completed and which ones still need to be done. Based on this idea of learner autonomy, well-known open forms of teaching can be used and organized effectively. For example, students worked on the topics of fairy tales, wheels or special texts at different stations activating all human senses and various competencies.

The mixed-age learning group work in the middle- and upper groups is divided into three phases. The introduction phase prepared by the teacher deals with content and learning methods. The students become interested in the subject and reactivate previous knowledge. To enable students to begin learning, it is important to develop clear images about the content and organization of the subject. Subjects stem from a curriculum developed over the course of years (see Table 3) in orientation to the Thuringian Curriculum. Furthermore, subjects are selected to enable students to tap into their creative abilities, to make decisions by themselves, and to present the main results of their learning process to others. During the working phase, students mainly learn independently. The teachers' role is to observe, analyze and to support the student in his learning process. The teacher is seen as an expert in his field who tries to stimulate students' enjoyment in learning so that they can approach the lesson topic in a self-sufficient way. Thus, the students become researchers and discoverers. Reading materials are made available in the learning environment and the students work with these. Using their own formulated questions, students select essential information and come to main conclusions. They help and support each other mutually in designing the parts of their presentations, clarifying unknown concepts or words, and using this knowledge on a practical basis. In doing so, students can test their expertise and make the experience that they are needed and valued.

During the final presentation, the students report their results and reflect on the quality of their learning process. After the presentation, students have the opportunity to improve their presentation and learning results. Finally, the teacher formulates a written appraisal for every student and evaluates their work process, their presentation and their written results. The parents receive a copy of this evaluation, as well.

The entire mixed age group project work is characterized by a clear structure which is also made transparent to the students. Rules and rituals play an important role for its successful realization. In the upper groups, the age-mixed project work was first established in the high-achievement courses, and later on in the basic courses as well. Now due to the new guidelines of the Thuringian Education Curriculum, interdisciplinary projects which follow a 3-year rhythm are carried out.

An important part at the Jenaplan School is the application of **portfolios**. On the one hand, students' portfolios can be seen as an instrument for the self-regulated learning and reflection of the individual development. On the other hand, portfolios are important for students and teachers regarding the transparency of assessment criteria. The students establish an assessment folder in which all texts and further products from various school subjects and projects are included. The teacher also possesses the same collection. Students are encouraged to take over responsibility for their own learning process, and furthermore for the information of their parents. A student's own learning process can be observed in more detail by using a portfolio. At the end of the school half-year and at the end of the

school year, the students receive the opportunity to reflect upon and discuss their portfolio as part of their individual self-evaluation. Based on their individual assessment reports, they prepare themselves for an evaluation talk with teachers and their parents. In this evaluation talk, not only the learning results but also the entire learning process with its successful steps and possible problems are considered and discussed. Students are also invited to reflect on their activities in written form taking the whole school life from kindergarten up to graduation into account. The reflexive process is not only focused on each individual but includes also external feedback by members of the learner group or parents. For example, especially the leader of a learner group writes a letter to each student giving feedback about his/her learning progress. The letter is addressed to the student him/herself. Special activities and strengths are praised; specific problems are named, as well as perspectives, suggestions for improvement and further development are described. During the evaluation talk with parents and teacher, this letter is read aloud, and included as information for further decisions.

REFLEXION OF THE SCHOOL HALF-YEAR - PREPARATION FOR YOUR PORTFOLIO CONVERSATION	
NAME:	
Please review the first half year and give a written reflection about different Topics.	
1. Name concrete targets from start of the school year (implementation plans; success; construction sites).	
2. Your attitude toward work: Concentration and continuity during the lessons; purposefulness and perseverance; responsibility.	
3. Time management: Timeliness; time expenditure; preparation and review of the lessons.	
4. Name your personal plans: Educational qualification; continuing career; what I propose to achieve - how I will achieve my targets; what I have done therefore; how my chances are.	
5. Your role in the group: Tolerance and acceptance of other opinions; capacity to compromise.	
6. Concrete targets for the new half-year.	

8.	Which mathematical principle forms the basis of the integral calculation?
----	---

Figure 2: A student's portfolio structure

In context with the organization of learning and teaching, the time structure of **the lessons** is also an important condition for innovative learning environments.

Instead of the 45-minute rhythm and subject-oriented instruction normally realized in the German school system, an open, adaptive form of instruction with regard to variable and individual learning situations is applied in the Jenaplan School. Thus, individual students receive enough flexibility and free time to work and learn at their pace during the day and weekly schedule as well as follow their interests, experiences, creativity, as well as social learning needs. The goal is to have students understand themselves as active and independent learners and who experience the fruit of their efforts.

During the lessons, different instructional methods and social forms are applied. These include (1) the Monday morning circle, (2) the learner group work (Stammgruppenarbeit), (3) coursework, and (4) times of celebration.

The basic social learning form of the lessons, as well as for the morning circle (1) is the chair circle. The students sit in a circle facing each other. A student leads the circle discussion involving freely chosen topics as well as group problems and critical situations. The Monday morning circle thus plays a central role in the group's social climate and is an expression of student participation.

(2) The Jenaplan School makes a distinction between learner group instruction (music, arts, sports, handicrafts/woodworking etc. and social studies) and the learner group work, as well as the learner group projects in nature, geography/ history, German and ethics/religion. In all learner groups, the project work (occurring for 100 minutes three times a week) is the central working form. During this time students can develop their interests, collect, get to know and organize subject material, make notes, take responsibility for eventual presentation content, organize work time, and finally present one's own results. Furthermore, social competency is developed when interacting with and assisting other students. Learner group projects are always planned to cover an epoch (a certain period of time in history) and cover various subject areas. This concept is legally approved by the official Thuringian Curriculum.

(3) The subject coursework is distinguished up to the 10th grade level in the following manner. Subjects such as mathematics or the first and second foreign language are taught from the 7th grade in single school year groups. Other subjects like German, geography, history or science/nature³ complement each other in coursework and learner group work. In the upper school levels, the lessons occur in mixed school-year groups starting with the second half year of the 11th grade (11.2) up to the first semester of the 13th grade (13.1).

The circle discussion form during learner group work, as well as during coursework has equal meaning. It is not limited to single subject work, and is not only a stable form of teaching within the weekly plan and during the Monday morning circle discussions. During circle discussion, any subject content is relevant as long as it can be effectively taught using this

method. The discussion can be related to reports, presentations, discussions, stories, responses to visual or written media and fair appraisal of individual achievements within the group.

The coursework guarantees the instruction of mandatory subject contents but simultaneously demand a high degree of development and discovery of individual abilities. Therefore, the internal differentiation is a central and didactical principle at the Jenaplan School. As previously described, social learning plays an important role in the educational concept of the Jenaplan School. Hence, it is only logical that the act of celebration (4) takes special meaning as a structural form in lessons. This act also supports the positive emotional experience within the school. A pleasant, positive atmosphere, as well as the transparently made values and norms provided by rituals intensifies learning processes at not only the cognitive level. The act of celebration is carried out every Friday at noon and is understood to be a summary of the weekly learning results within the whole school. It is prepared and carried out alternately by students and teachers.

The following Tables are an aid to better understanding the described organization of lessons.

Legend for the following Tables (7-9):

Mixed-age lessons
Single-age lessons
Pedagogical-oriented youth activities

	Monday	Tuesday	Wednesday	Thursday	Friday
08.00 - 09.50	Morning circle	Handicrafts/ Arts	Learner group work	Class Class	Music Sports
09.50 - 10.15	Recess/School break				
10.15 - 11.55	Learner group work	Class	Class	Learner group work	Class
11.55 - 12.45	Lunch/Break				
12.45 - 13.35	Class Class	Class	Class	Learning time	Celebration
13.40 - 14.25	After-school activity	After-school activity	After-school activity	Class	Orchestra practice
14.30 - 15.30	After-school activity	After-school activity	Chorus	After-school activity	After-school activity

Table 7: Weekly rhythm in the sub-groups

	Montag	Dienstag	Mittwoch	Donnerstag	Freitag
08.00 - 09.50	Morning circle	Class	Class	Class	Learner group work
09.50 - 10.15	Recess/Break				
10.15 - 12.00	Class	Class	Learner group work	Music Sports	Class
12.10 - 12.55	Class	Music	Learning Time	Class	Class
12.55 - 13.45	Lunch/Break				
13.45 - 15.25	Woodworking / Arts	Sports	Class		Celebration
		Capoeira	Chorus	Woodworking	Orchestra
	Social worker-planned creative activity				

Table 8: Weekly rhythm in the middle group

	Montag	Dienstag	Mittwoch	Donnerstag	Freitag
08.00 – 09.50	Morning circle	Class	Sports	Class	Class
	Class		Class		
09.50 – 10.15	Recess/Break				
10.15 – 12.00	Learner group work	Sports Music	Learner group work	Class	Learner group work
12.10 – 12.55	Class	Class	Learning Time	Class	Class
12.55 – 13.45	Lunch/Break				
13.45 – 15.25	NUT / DG	Sports	Class	Social studies / Arts	Celebration
	Social worker-planned creative activity				Orchestra
	Pedagogical-oriented youth activities				

Table 8: Weekly rhythm in upper groups

The Jenaplan School focuses on alternative ways of assessment. The teachers of the Jenaplan School assume that there cannot be objective assessments which occur fairly in the traditional achievement assessment forms. Fairness can only be reached if each individual is considered in regard to his abilities and personal characteristics. That is why it is important for teachers of the Jenaplan School to accept every child as a unique personality, and to support each child according to his/her individual abilities and skills. As a consequence, measuring achievement has to be modified. It is not only the cognitive aspects of performance that are relevant, but also the aspects of social learning, the ability to apply oneself, self-reflection and self-assessment abilities. In this regard, the idea of transparency of assessment criteria is an important aspect for both students and between teachers and students. An innovative step in this direction is the use of portfolios at the Jenaplan School (see p.17).

3.3 Key Area C: The State and Quality of Learning at the School

In the following part of this report, three exemplary learning environments are specifically introduced. They were chosen to characterize the state and the quality of learning at the Jenaplan School. Single elements were already explained in this report and thus will be outlined only briefly. The choice of learning environments occurred in two steps. In the first step, a group of from Jenaplan School provided a list with those learning environments which they themselves deemed as suitable for a closer look. In the second step, the following three learning environments were selected by this report's authors:

1. Learner group work (Stammgruppenarbeit)
2. Mathematics lessons with mixed-age learning groups in the Middle Group
3. The pre-school group "Sparrow"

3.3.1 Learner Group Work

Concept

The Jenaplan School is subdivided into five large segments: the Preschool/kindergarten (ages 3-6 years), the sub-group (1st -3rd grades), the middle-group (4th -6th grades) and upper group (7th - 9th, 10th grades) and the high group (11th ,12th and 13th grades). Within these groups students from three years of age onward learn together in 3-year age range mixed-age groups. Three days a week each mixed-age learner group attends three learner group lessons, each session lasting 100 minutes. These lessons are always organized in an interdisciplinary way and involve (historical) epochs (compare 3.2.2). The mixed-age learner group lessons involve varied project themes from the areas of nature, geography, history, German and ethics/religion.

Participating Persons

Learner: During learner group work, children and youth with an age range of three years work together. For group organization and planning, four learner groups are formed out of this larger group.

Teacher: The teachers prepare work on a project theme/topic together and carry out team teaching in the learner groups. Further cooperation focuses on theme-oriented teacher teams.

Time Organization

As described, the learner groups are structured into three-year age groups (the sub-group, middle-group and upper-group). The sub-group is introduced to the weekly plan work and later on to the project work. The acquisition of self-regulation strategies for the individual learning process is the main focus. Per week, 7 time units are available to the children, each for 50 minutes. In the middle-group and upper-group, the students work weekly on their project topics 3 x 100 minutes. The topics derive from the educational curriculum, focus on learning strategies (see Table 3), or are connected to curricula of other subjects. In the middle-group and upper-group work in the learner groups is divided into an introduction phase, a working phase and a presentation phase. These phases can be reviewed in Section 3.2.2.

Room Design

The classrooms in which learner group work takes place are predominantly arranged in a flexible fashion. Several seat groups allow for work in small groups and therefore promote the mixing of children of different ages. Various materials are accessible to the

learners at all times. In addition, students can distribute themselves throughout the whole school area during the working phase. The children and youth are consequently moving around quite a bit – no one experiences this movement, however, as annoying restlessness. Interaction instead is characterized

by mutual thoughtfulness. The prepared learning environments offer many attractions and inspiring materials and contents. Nevertheless, a feeling of insecurity or restriction by these many materials does not exist.



Figure 3: Classroom of the Jenaplan School

3.3.2 Mixed age-groups in mathematics lessons of the middle group

Concept

The math lessons, which up until now were held separately for each school year are now held for mixed-age learner groups within the middle group (4th-6th grade). After significant effort to differentiate teaching (for the various levels of ability) during math lessons, the school decided to transfer the learner group work to this subject of teaching as well. Individualization within the mathematics lessons is realized via the application of "learning paths".

Participating Persons

Learner: The group of learners within the middle group currently consists of about 100 students. The middle group is subdivided into four learner groups which receive six hours weekly to work in the mixed-age groups (see Learner Group Work). The additional change of turning making middle group mathematics lessons into mixed-age group lessons is innovative. It may be seen as an indicator for the flexibility and adaption in organizing learning environments within the Jenaplan School.

Teacher: Four teachers teach in two teams in neighboring rooms (tandem). The mixing up of the tandem partners in the four different middle groups guarantees comparable teaching content and methods.

Time Organization

Approximately 200 minutes weekly are available in the middle group for the mixed-age math lessons. A working unit encompasses 100 minutes and consists of the following phases: (1) greeting in the chair circle, (2) daily practice with small problem assignments which refer either to work within the learning paths or mathematical tasks which are discussed in small groups, (3) independent student work (mixed-age or individual work with Learning Paths), and (4) joint reflection in the circle-seating arrangement (which include reporting, reflecting

and goal-setting: processed work, practice and review of material, and double-checking learned material).

Room Design

The room contains several small seating groups offering working space for four to five learners. Work on the Learning Paths, with their accompanying work sheets and materials as well as self-tests, are available in the middle of the classroom. Every child has free access to all materials and subject areas. The teacher team is present in the room and supports and helps students as needed.

3.3.3 The Preschool Group "Sparrow"

Concept

The preschool and kindergarten section of the Jenaplan School is an integral component of the whole school concept. It is managed by the working group Jenaplan Pedagogy Inc. and integrates preschool and kindergarten children into the school community. From the age of three to school entry age, the children get to know the basic principles of the Jenaplan education from the start. Thus, the children experience the learning and working rhythm of the week through morning circles and end-of-week celebrations. The combination of mixed-age and single-age groups is experienced, too. Contact with older students of the Jenaplan School is made possible by the common building and regular joint activities such as the annual school project week where all children and youth of the school are involved.

Participating Persons

Children: At the moment, 30 children visit the preschool group "Sparrow" and range in age from 3 to 6 years. Later most of the children also become students in the sub-group of the Jenaplan School. The concept of mixed-age learner groups accompanies the children, as mentioned, to the upper group classes.

Early Childhood Educator Teachers: Three ECE teachers and a Spanish educator (this latter position financed through donation money) care for the preschool children from Monday through Friday from 7:00 a.m. – 5:00 p.m..

Time Organization

The weekly rhythm of the preschool group is oriented to that of the comprehensive school. Thus, the week begins with the Monday morning circle and ends with the week's end celebration on Friday. With conversation, play, work, and celebration, four essential basic forms of the Jenaplan educational concept are also integrated into preschool group life. In addition, one hour per day is reserved for resting or sleeping. Aside from open play phases, the children play outside daily and are offered a weekly sport activity. Scientific experiments are also offered and organized by a biology teacher from the school. An introduction to the Spanish language and culture and a hands-on African drum course are only a small sample of the varied preschool group program. The preschool/kindergarten group meets the school children and older students daily during the school break on the school grounds and

playground. Moreover, the "Sparrows", together with the sub-group, organize joint end-of-week celebrations during the week.

Room Design

The rooms of the preschool group are completely integrated into the school and allow for natural contact with older students as well as with future teachers. The preschool group room is organized into a working area, a play area, and an eating area. In addition, the group has a room for arts & crafts, a resting room and a sports/movement room which stimulates children's physical and musical activity. All room equipment, based on the idea of the "school living room" of Peter Petersen, creates an inviting, warm and familiar atmosphere.

3.3.4 Understanding the innovative learning concept of the Jenaplan School

"Learning always takes place when students' interests are taken into account. That's how learning works."

(A Jenaplan School teacher)

Based on the aforementioned conceptual elements and after taking the interviewed school persons' statements regarding school life and its organization into account, one can understand the implied innovative- and learning concepts of the school. Interview citations are used in this study to confirm this understanding. The elements related explicitly to the OECD (Organization for Economic Cooperation & Development)(OECD, 2010)⁴ innovation criteria are emphasized in the text using **bold print**.

The age mixture of students in three selected learning environments, presented in this case study is a central innovative element of the school. This allows the learners to deepen their understanding of the thematic areas using various methods according to their individual abilities and interests.

"For me the most important aspect of student learning in mixed-age groups is that this kind of learning gives the student a learning "push". It always leads to success. The children gain a lot of strength from this success, and it is also true for those learning areas where they are not as capable. These learning boosts, kindled by these successes, are irreplaceable." (A Jenaplan School teacher)

„I think it is helpful that we as older students can help the younger ones." (6th grade student)

Students of lower classes or learners with lower achievement abilities receive support from children and youth from higher classes or by Students with higher achievement abilities. **Common learning** is already being promoted in the preschool group due to the principle of „learning by teaching“. The difficulty that especially highly competitive learners have in not finding any learning partners is solved in this positive, constructive way.

⁴ Innovative learning environments are schools which are able to teach their students in 21st century competences. Innovative learning environments are such schools in which it is possible to break down routines and arrangements for a better and more individual learning.

„When we work in mixed-age groups, the innovative aspect is that the children can get involved in accordance to their abilities.“ (a teacher)

The individual learning tempo is relevant for children’s actions in these concrete learning environments. Not the differentiation with respect to age level, but the individual conditions and abilities determine the course and the progress of the learning process. The **heterogeneity** of the learners is can be met in a wide spectrum of ways in regard to adaptation of learning content and repetition of learning material, which is possible at any time. Processing **theme-centered material** in an effective way is thus possible for the students.

The didactic-methodical processing of themes and learning topics represents a further innovative aspect of mixed-age teaching. The mixed-age groups need an **individualized treatment of the learning content**. Thus, in the School’s internal curriculum, for instance, two different ways of teaching mathematics in the middle group are used. Alternately, math learners learn individually for several weeks using the Learning Paths, or together on single math subjects. The Learning Paths illustrate wider subject fields in mathematics and are subdivided into learning steps. Students work on these Learning Paths via work sheets (Figure 3). These sheets allow for learning-checks due to the availability of example solutions. Every learning level is concluded by a self-check test. Working on these sheets in a specific order is only necessary in those areas where fields of knowledge build upon each other. Otherwise, the students can work on the contents in an **interest-oriented way**. The work sheets name a learning goal, stimulate independent thinking and give students impulses to document what they learned via a learning diary.

Following work on the Learning Paths, the students then come together in a group to discuss main subject areas. Students in mixed-age learning groups together work on relevant questions and important math content. Providing transparency, explanation and reason for (teacher) chosen learning methods is of great importance for students, enhancing the meaning of these methods and contributing to a relationship of trust between students and teachers.

The third innovative element lies in the various forms of learning-success control and learning assessment. No number grades/marks through the sixth grade are given at the Jenaplan School. This is an exceptional way of thinking in the Thuringian School Law. Due to this fact, it becomes possible for students to assess their own learning success more or less independently, giving it individual meaning. Furthermore, the learning progress is

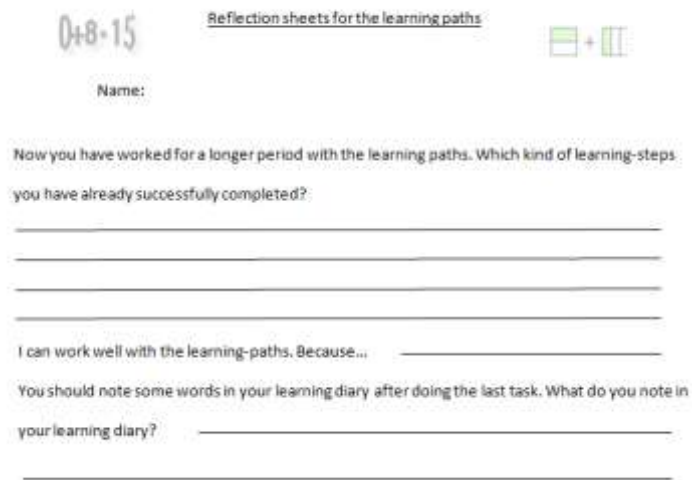


Figure 4: Work sheet

documented by entries in a learning diary. Such a learning diary enables the student, for example within the mathematics lessons, to document his learning progress in his own words. It is also used as a form of documentation, summarizing important areas of learning. The self-tests at the end of each smaller unit contribute to the student's development of a realistic self-assessment. Open assignment units allow the teacher insight into a learner's accomplishments and possible lack of understanding in certain areas. A student's self-assessments are, as aforementioned regarding report card/learner-assessment talks with parents, the basis for written teacher comments.

"Any assessment should show esteem for the student. It is clearly designed to show where the learning progress has been successful, or if it isn't, why. Further steps or new ways to solve any weaknesses are given." (A teacher)

The presentation of work results is at the same time a display of esteem for student performance and is also a time for reflection. The instruments applied to document and control the learning process are oriented toward learner progress. They are totally different to procedures oriented towards showing student deficits. In particular, the strong focus on the individual learning process requires a **large number of formative diagnostic instruments**, such as the learning diary or portfolio. The stronger the focus is on learner participation in learning assessment, the more the role of the teacher has to change and be oriented toward the learner. Therefore, the professional role of the teacher must change (see p. 5). In contrast to teacher-centered instruction, **self-regulated learning** can be realized within these learning environments. In case students have difficulties, they first consult other learners, then if necessary the teaching staff. Individual feedback is thus possible. All previously described innovative areas demonstrate successful ways to promote individual learning.

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 characteristic picture. This doesn't necessarily mean that these ratings can be compared with those of other institutions, however. This is also the case for the following results and sources, allowing only an idea of the efficiency and effectiveness of the school.

3.4.1 Graduating Degrees Achieved

The Jenaplan School permits the acquisition of all possible graduating degrees: the certificate of secondary education, the general certificate of secondary education, as well as high school degree qualifying a student to study at a university (Abitur). The following table shows the successfully passed exams of this school describing in absolute and relative frequencies.

School year	Graduating Degree	Number of Testtakers	Number of successfully passed tests	Percent of successfully passed tests (%)
2007/08	Qualifizierender Hauptschulabschluss	5	5	100
	Hauptschulabschluss	0	0	100
	Realschulabschluss	34	34	100
	Abitur	21	21	100
2008/09	Qualifizierender Hauptschulabschluss	1	1	100
	Hauptschulabschluss	0	0	100
	Realschulabschluss	36	36	100
	Abitur	18	18	100
2009/10	Qualifizierender Hauptschulabschluss	1	1	100
	Hauptschulabschluss	1	1	100
	Realschulabschluss	39	39	100
	Abitur	28	28	100

Table 10: Degrees at the Jenaplan School of Jena

3.4.2 Results of the Thuringian Competence Test

In a national competence test, students in Thuringia are regularly tested in the subjects of German, mathematics, and English. The grade/class levels 3, 6 and 8 are focused upon. Comparative values of these tests are the corrected averages for the State of Thuringia as well as the Jenaplan School averages from previous school years. The given percentages show the positive or negative divergence from the Thuringian average. Divergences of less than 3% are not significant and are marked in the following by n.s. (not significant). A minus in front of the percentages would mean that the results from the Jenaplan School are lower than the results from other Thuringia schools. Positive values indicate that the achievements of the school are higher than the results at schools with similar school population. This shows increasingly positive results for the Jenaplan School in the years 2008-2010.

Test year	Divergence from the corrected Thuringian mean value ⁵
2008	ca. 8%
2009	ca. 7%
2010	ca. 11%

Table 11: Results of the Thuringian Competency Test in the years from 2008 to 2010

3.4.3 Development Plan „Independent school" of (EVAS)

The evaluation by an external team of experts aims to gain a whole new view of the school in relation to specific criteria, as well as to provide feedback to the school. These criteria describe the theoretical framework of an "independent school" and contain school-specific

⁵ See in annex.

criteria that were discussed in advance with the school. The evaluation criteria for the Jenaplan School of Jena are the following:

- Achievement of the Thuringian Educational Goals and Standards via the realization of the special school concept of the Jenaplan School,
- the degree of individualization within the learning process,
- the understanding of the concept of achievement,
- and more.

The evaluation included the use of various evaluation 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 citations from the evaluation report. The report focuses on five quality areas of a non-hierarchical order:

Quality Area I: Teaching and Learning

„There exist clear rules which are equally valid for students as well as for teachers and early childhood educators. [...] We estimate that varied measures have been taken by the school to accept every single student exactly where he/she stands in the learning process, and that every kind of help and support is provided so that he can develop his own learning strategies.“ (School Report of the Independent School Jenaplan School of Jena, p. 2)

Quality Area II: school climate and school culture

„The students feel taken seriously with their suggestions and wishes. They feel predominantly feel here, like „democracy - life and learning“can be learned and is lived.“ (School Report of the Independent School Jenaplan School of Jena, p. 4)

Quality Area III: Cooperation and Communication

„Structures of professional cooperation were created. A large part of the responsibility for this conversion lies in the jurisdiction of the teams. So that these teams do not have to do all of this alone and in order for them to profit from current (educational) structures in society, they complement their work with a large number of necessary cooperative arrangements, not only with regard to projects or within the single school-year teacher teams.“ (School Report of the Independent School Jenaplan School of Jena, page 6)

Quality Area IV: Guidance and Management

„All in all we determined that here at the Jenaplan School a democratic culture exists which was appreciated repeatedly by the public and was distinguished as outstanding in varying forms (for example through the award of the Theodor Heuss medallion). It is one of the indispensable principles of the school that every school member participates in a wide variety of teams.“ (School Report of the Independent School Jenaplan school of Jena, p. 6)

Quality Area V: Aims and Strategies

„Maybe it would be interesting to find out [...] whether there are other schools worldwide which integrate children from preschool- through university entrance levels.“ (School Report of the Independent School Jenaplan School of Jena, p. 8)

3.4.4 „Thuringian Network for Innovative Schools“(ThüNIS)

The ThüNIS study aims to help schools assess their actual state and, based on this, to focus on and develop school structures with a lasting effect (cf. ThüNIS State Jenaplan School of JENA Report, 2009). External experts are involved in this study such as scientists and school development advisers, as well as school representatives. The evaluation 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 students, teachers and parents as to how successfully the students learn at school.
- Learning- and teaching methods: the application of different learning and teaching methods is the area of focus.
- Well-balanced lessons: Subject-specific as well as interdisciplinary aspects of lessons are rated.
- The support of positive social behavior: teachers and students rate how and to what extent rules and support systems for positive social behavior exist.
- Individual student support: situations in which students need (specific) support as well as the existing support systems.
- Assessment: various aspects of assessment and consultation in the school are focused upon.

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 Jenaplan School in comparison to the results from all Thuringian schools.

Area of school development	Agreement ⁶ in % (Jenaplan School, 2009)			Agreement in % (Thuringia)		
	Students	Parents	Teachers	Students	Parents	Teachers
Teaching and learning						
Satisfaction with the transfer of factual and subject knowledge	85	89	90	78	78	73
Learning and lesson methodology	85	88	74	79	72	83
Balanced lessons	70	---	91	67	---	79
Encouragement of positive behavior (child-raising effectiveness)	83	86	99	76	74	93
Individual student	85	88	98	75	84	95

⁶ Agreement means that teachers, students, and parents assess how successful learning at Jenaplan School is and how they value the quality of effectiveness and their satisfaction with the climate and culture at school. In context with the ThüNIS test-instrument, high agreement can be seen as high satisfaction in the various areas

Area of school development	Agreement ⁶ in % (Jenaplan School, 2009)			Agreement in % (Thuringia)		
	Students	Parents	Teachers	Students	Parents	Teachers
Teaching and learning support						
Counseling and evaluation	56	85	65	54	48	71

Table 12: ThüNIS results part 1

In four out of a total of six items to the topic teaching and learning, students, teachers, and parents from the Jenaplan School show a higher degree of satisfaction with the school development than students, teachers, and parents from other schools in Thuringia.

The following results describe how effective student competence development at the Jenaplan School is rated by students themselves, teachers and parents. Four competency areas related to the Thuringian Education Curriculum were the areas of focus. These are: factual competence, methodological competence, social competence and self-competence. The aspect of satisfaction explains to what extent students have the feeling that they are supported in their development of self-competence at the School.

Area of school development	Agreement in % (Jenaplan School in 2009)			Agreement in % (Thuringia)		
	Students	Parents	Teachers	Students	Parents	Teachers
Degree of effectiveness						
Subject competence/practical competence	72	---	79	68	---	75
Methodical competence	88	55	97	82	77	89
Social competence	90	91	94	79	74	85
Self-competence	82	90	99	74	63	80
Satisfaction	66	93	97	60	74	89

Table 13: ThüNIS results part 2

Regarding the degree of effectiveness, all persons at Jenaplan School are very satisfied with the following competencies because the percentages range between 55% at the lowest up to 99% at the highest level in the interrogation: subject /practical competence, social competence, self-competence. Finally, they valued their satisfaction with the Jenaplan School.

The ThüNIS-test has furthermore checked how satisfied students teacher parents are with the prevailing school climate and culture at their school.

Areas of school development	Agreement % (Jenaplan School in 2009)			Agreement in % (Thuringia)		
	Students	Parents	Teachers	Students	Parents	Teachers
School climate and culture						

Areas of school development	Agreement % (Jenaplan School in 2009)			Agreement in % (Thuringia)		
	Students	Parents	Teachers	Students	Parents	Teachers
Learning climate in various learner groups (class lessons, single-age groups, mixed-age groups)	80	94	99	77	79	93
Friendly and secure atmosphere	78	95	96	69	78	84
Ability to deal with problems	84	---	97	72	---	96

Table 14: Additional ThüNIS results

In comparison to other schools in Thuringia, students, teachers, and parents are more satisfied with the school climate and culture at the Jenaplan School than students, teachers, and parents from other schools.

4. Conclusion

The Jenaplan School in Jena represents a rich innovative learning environment for heterogeneous groups of learners from preschool/kindergarten to the pre-college level. Based on criteria of the OECD for the term "innovation", numerous elements of the school and learning practices at the Jenaplan School can be described as innovative. First, the school structure is totally different compared to traditional school systems. Aside from the idea of having a mixed-age group of learners with different developmental stages, the idea of accompanying the learners along their individual paths of learning and becoming part of society is very characteristic of the school. In this manner, the Jenaplan School already integrates a group of preschool learners. In doing so, learners are lead to their final graduation degree without outward notice of their abilities in various subjects. As described in Chapter 3.4.1, this idea has been accomplished very well. However, innovative elements can also be found at other levels of current school life. Thus, the traditional and rather teacher-centered way of teaching has been altered to a learner-oriented way of teaching. This was realized by the integration of topics relevant to everyday life and the use of thematic areas. The well-structured learning environment is another important aspect. It is characterized by the possibility to choose topics autonomously that are to be learned on the one hand, but still of interest to the students. Students are supported in learning independently by themselves, or in groups. By that, students from the Jenaplan School have more freedom for their learning than students from other schools. Finally, the role relationships within the school are newly defined. There are for example teams and tandems of teaching colleagues having granted freedoms and responsibility, just as the students do in classroom learning and pedagogical after-school activities. The learning environment in the Jenaplan School promotes self-regulated learning, a basic school principle not difficult to attain because the teachers give their students the necessary freedom to accomplish this. Teachers at Jenaplan School define their role not as decision-makers but rather as mentors

and learning partners for the students. The use of portfolios illustrates how transparent teacher, students, and parents are dealing with evaluation and assessment. Jenaplan School offers in this way a structure of reflexivity, responsibility, and mutual respect which is needed in our democratic society. This principle does not only include the relationship between the teachers and their students but also the relationship between the school director and teachers, not to mention also that of the Thuringian government and the Jenaplan School. It was because of this latter relationship that the Jenaplan School had the chance to become an innovative learning environment due to the official Thuringia School Trial with the goal of further developing this school. Even after the School Trial concluded, these innovative elements regarding the school's structure and lesson organization have still remained. This fact was not the only one which contributed to the school's positive development. Nevertheless, it was one of the most significant ones. Finally, it is remarkable that these three selected and manifested innovative learning environments are only a small part of the various innovative elements at this school. However, even this "flashlight-beaming" offers a closed and extremely harmonious comprehensive picture of this innovative institution. Thus, these results are not part of a long project that has already been completed. It is more apt to state that they offer a view of a school still in the process of continual change, optimization and adaptation of a learning environment which explicitly focuses on the individual learner.

5. References

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Annex

The German educational system has three different kinds of general education graduation degrees. These are: 1) the secondary education degree, called the "Hauptschulabschluss" (obtained after 9 years), 2) the higher-level secondary education degree, called the "Realschulabschluss" (obtained after 10 years), and 3) the highest-level high school and the specialized-field high school degree (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 primary and secondary schools (I and II) in the German educational system. The secondary school II continues on from the tenth year of secondary school I, which in turn builds upon the education received at the elementary/primary school level.⁷

From ages 6 to 10, German students visit the elementary school. The elementary school provides recommendations for each student 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 secondary school I (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 agencies. The Thuringian school forms are: the elementary/primary school (Grundschule), the secondary school ("Regelschule"), the high school (Gymnasium), the comprehensive school (Gesamtschule) as well as special-needs schools (Förderschulen)⁸. The "Regelschule" includes two types of secondary schools (the Hauptschule- and Realschule). The secondary education degree is automatically achieved after the 9th grade/class. If a student voluntarily takes an additional "Hauptschule" test and passes it, he will receive the "qualified degree of secondary education" (Qualifizierender Hauptschulabschluss). The higher-level secondary education degree is achieved after the 10th grade. This latter certificate allows entrance into the highest secondary school classes (11th and 12th grade). Both the secondary school degree (Hauptschulabschluss) and the higher-level secondary education degree ("Realschulabschluss") can be obtained at the high school (Gymnasium). Once either of these degrees is obtained, the student is allowed to enter grades 10 or 11, respectively. At the end of the "Gymnasium" school curriculum, the student is qualified to attend a university. The structure of the "Gymnasium" is similar to that of the comprehensive school (Gesamtschule). However, students complete the secondary school degrees, normal und higher-level, in the same way as the procedure is in the "Regelschule". The highest secondary school classes in the "Gesamtschule" include three years (11th-13th) instead of two additional years.

⁷ It is important to know that some of the school systems in the 16 federal states of Germany differ significantly. To get more background information about the Thuringia school system please take a look at the annex. On this way you get a deeper understanding about the context in which the following ILE-school is integrated.

⁸ Vocational schools are not considered.

Corrected average:

Corrected average means are mean values at local level. The corrected average serves for the comparison of students' performance between the one school and other schools in Thuringia. For a better comparison, the mean values of all Thuringia students were corrected. Important characteristics for this correction are: Gender, mother tongue, how many students must repeat the last grade, special educational needs of children, the number at books at home; comparisons have been made only between students from the same school type.