Final Report
„From Learning Logbook
to Individual School Book"

Verein Offenes Lernen (OLE)

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In the name of the users we want to thank:

Team respekt.net

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Implementation of the project

With the project "From Learning Logbook to Individual School Book" OLE managed to take a new step towards individual learning and individual advancement of students in Austrian schools. This would not have been possible without the fantastic support of respekt.net. Thank you!

You have supported us in realizing the following:

a. An individual (e-)school book

Starting from the Learning is Personal (LIP) – App which we have successfully used in the documentation of the activities of school students for many years, we took another step forward. The new product – printed or as an ebook - does not only document the current status, it creates and provides content by letting teachers become authors.
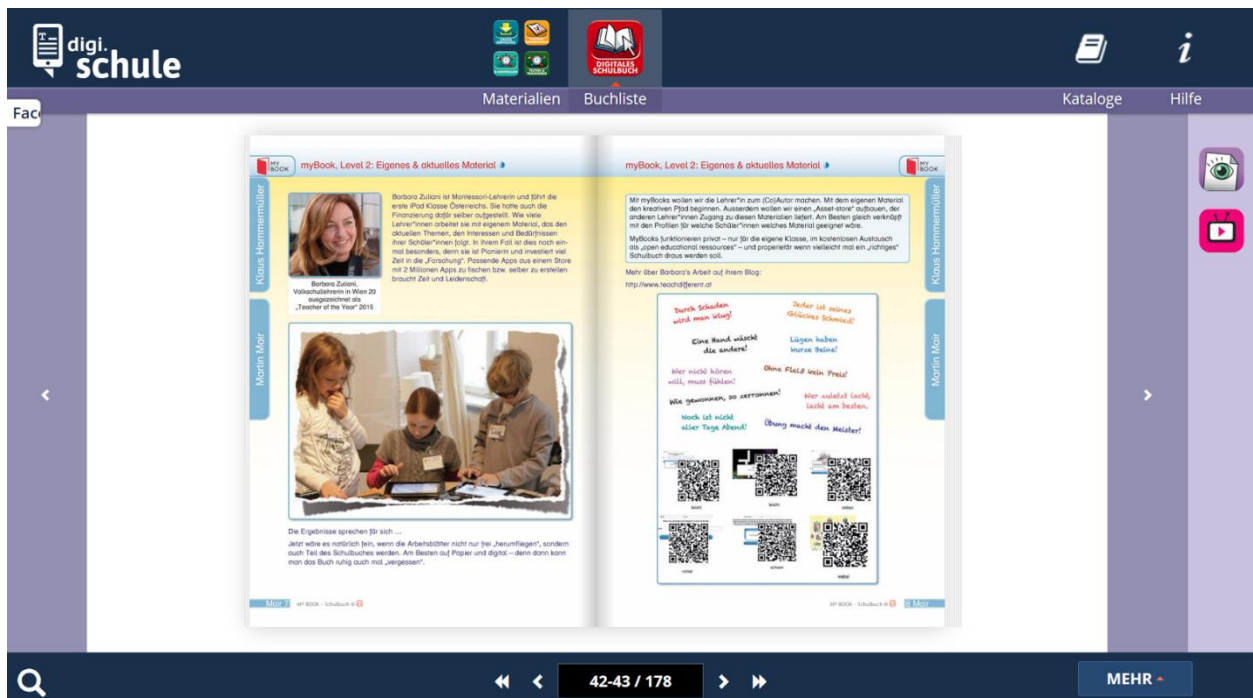

Figure 1: online viewing of the book "impuls"

Figure 1 shows a page of our first individual school book: A book for the subject "Sachunterricht", in which we have inserted the information about the individual school book. (We have presented this book for the competition of ideas at the Kreativwirtschaft of the "austria wirtschaftsservice": https://digi.schule/impuls.)

From the beginning it was very important for us that the variety of conditions of diverse teachers and school classes would be taken into account. For that we have defined 4 "levels":
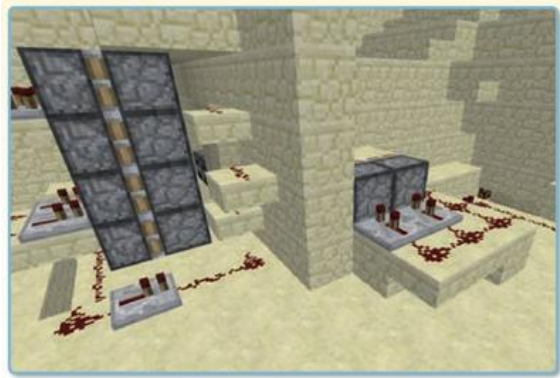
Level 1: Supplementation of a book with the contents of other books	Level 2: Supplementation of a book with contents created by teachers
Level 3: Supplementation of the book with the outcomes of students` projects	Level 4: The dissociation from paper, e.g. a task in minecraft

Figure 2: the four levels, with examples

b. A database full of examples

If teachers want to integrate individual content in books they need a pool of matter – in the end not everyone wants to design content from scratch again and again.

Therefore, we started to build a database of examples. One of the challenges for this was to find an effort-efficient possibility to extract information from printed books and turn it into a form that could be readable for machines. Unfortunately it is has proven impossible to automatically extract information from a pdf document. For this reason we have developed a process and a tool ("Beispiel-Editor", the editor of examples) with which also people without an IT background can work efficiently after a short training. Using this method a small team can make two mathematics books accessible within only a couple of weeks.
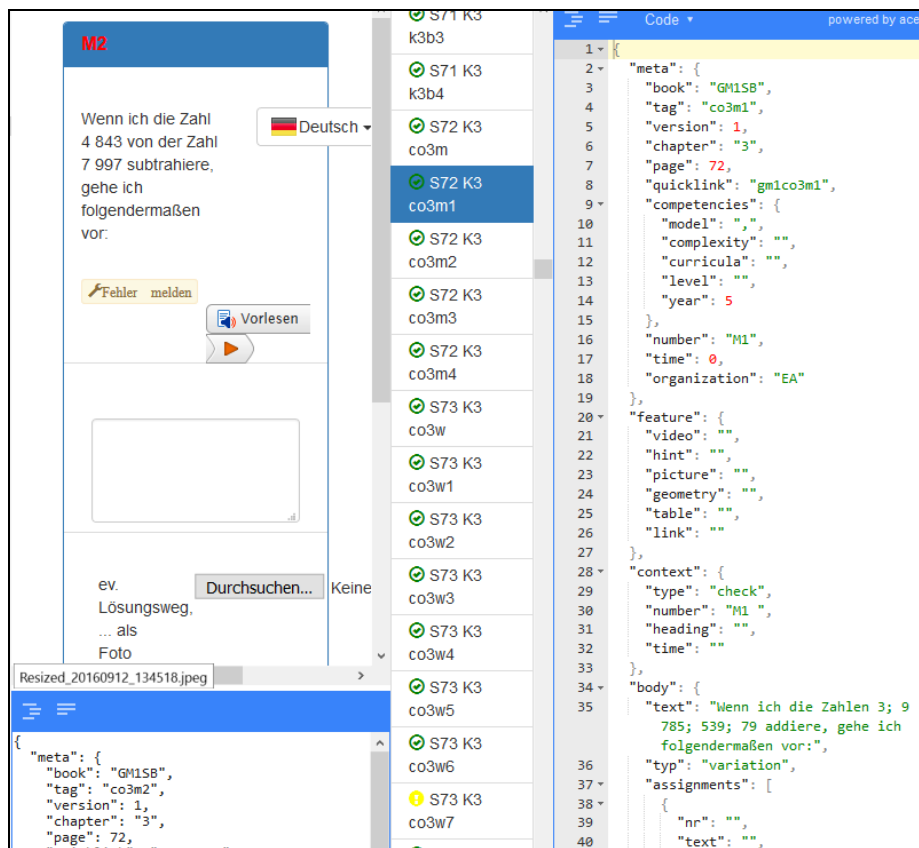

Figure 3: „Beispiel-Editor"

Entering the book in this system means to record mainly record meta information, like competences tackled, difficulty of a task, correct solution of a task, hints and links etc.

The here developed database is a powerful tool and the foundation for a variety of useful functions, e.g. the compilation of tasks for homework or exams. These activities (entering the data and implementation of the different functions) will be continued continuously in close collaboration with teachers.

c. "Abgabe-App": the handin-application

Together with teachers and the publication house Lemberger, specialized in educational publishing, we created an electronic learning log book (an extension of the already existing LIP-App) for the start of the new school year. The handin-application connects the different parts – LIP-App, database of examples and the learning analytics:

- As an extension of the printed book it offers functions like the translation of text or it reads the text to the user, hints, integrated links (e.g. explanation videos), the immediate feedback whether a task was answered correctly and the handing in of the answers to the teachers.
- The data that is created here (e.g. "Mario successfully solved the task 7 on 12th of September 2016 on his second try, after he watched the explanation video") is saved in the log book.
- The saved data is used for the analysis that supports teachers in keeping an overview of their classes full of diverse students and in taking the correct pedagogical decisions.

It is crucial that the handin-application is used by the students themselves, so they enter the data directly. This way the documentation does not have to go through the teacher anymore. Of course this only functions if the students receive an immediate benefits from the handin-application, which according to test runs is the case.

The handin-application is very flexible and offers according to each task different features, e.g.
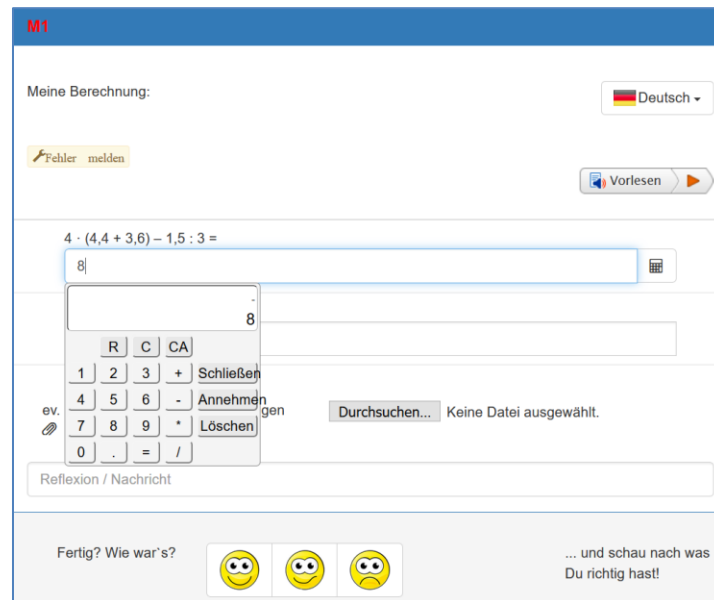

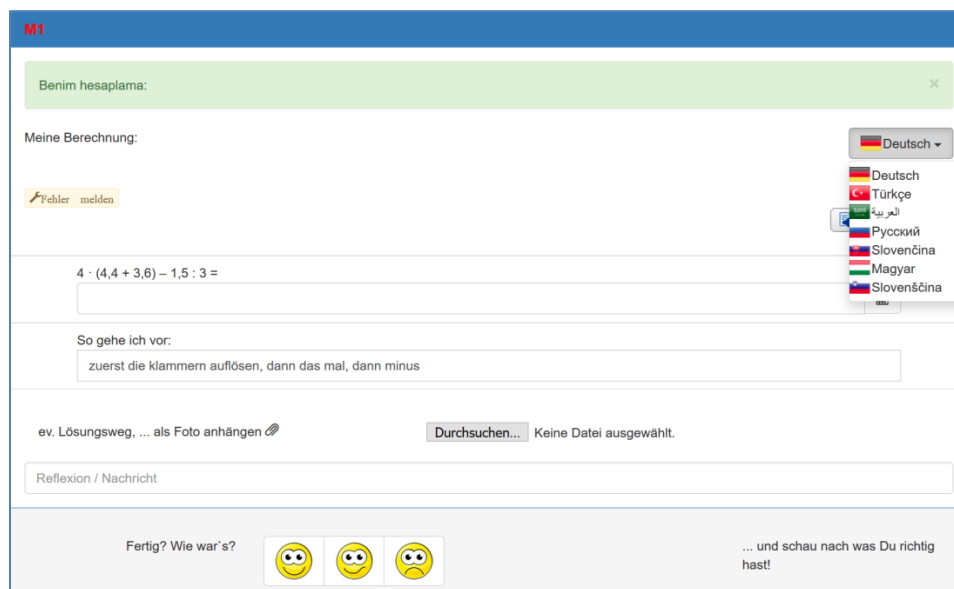
Figure 4: visualized calculator
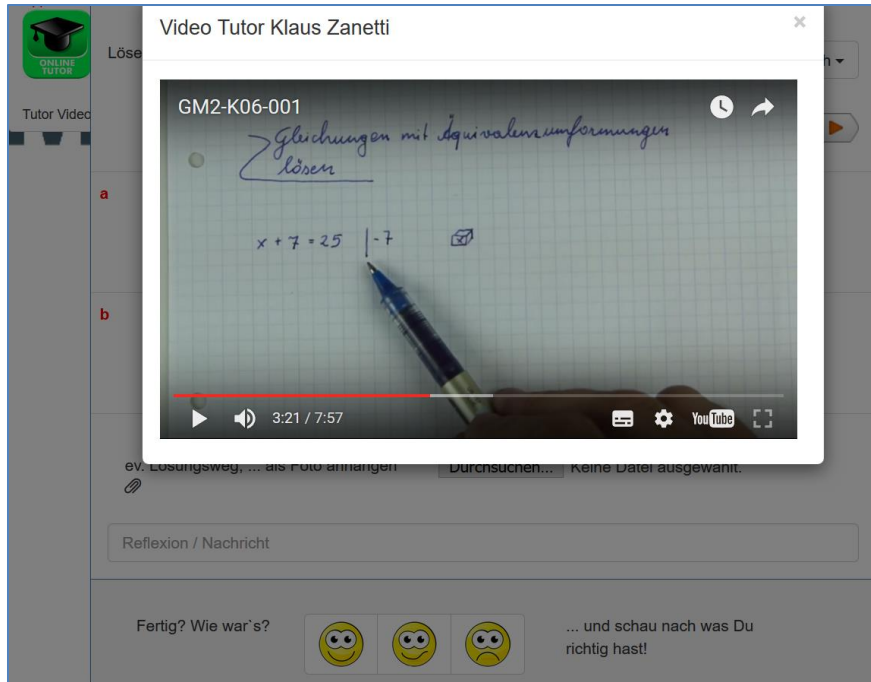

Figure 5: translation of the text

Figure 6: integrated explanation video

Figure 7: geometry-plugin for geometry tasks

Figure 8: feedback on the correctness of an answer: green hook next to the task

The handin-application was tested in school classes in the summer semester of the school year 2015/16 (amongst others in the PH Vienna). Especially the feedback from students was very encouraging – many didn't want to work without the handin-application anymore and were disappointed when they found out that only certain chapters and not the whole book were connected to the handin-application.

In the school year 2016/17 (now!) the handin-application is available for around 40.000 students (all those who use the book "Genial Mathematik 1"). With this we have reached a wide group within the school system.

d. Data analysis

The prerequisite of all form of data analysis are qualitatively high data. Traditionally within the school system teachers are responsible for the documentation and often they lack time to do it. Thanks to the handin-application the students take over this task themselves, because the app provides enough attractive benefits: They communicate to the app on what task they are working, what they think is the correct answer and which support they might need (hints or video). Together with the information from the database of examples this provides enough data

to create an assessment. This assessment creates real value for the teachers, like in these examples:
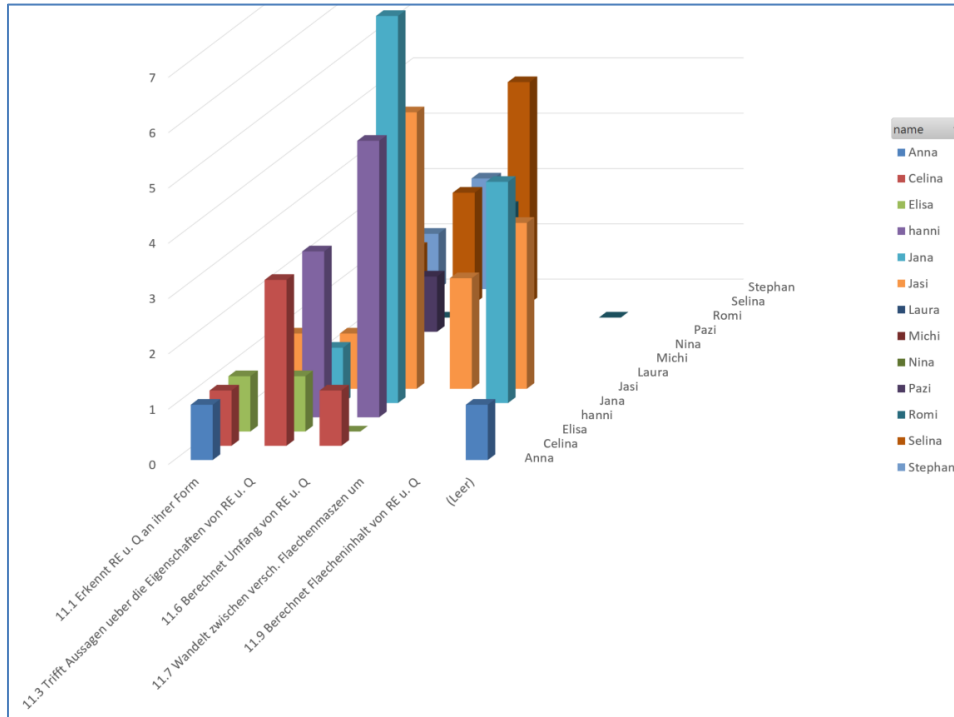

Figure 9: Which student developed which competences?

Summe von attempt · Spalten ▾

Zeilenbeschriftungen ▾	Anna	Celina	Elisa	hanni	Jana	Jasi	Laura	Michi	Nina	Pazi	Romi	Selina	Stephan	Gesamtergebnis
644	1	1	1	1		1					1	1	1	8
648				1										1
649		3	2	2	1	1		1	1	1	4	2	2	20
654						1								1
659		1		2	2	1					2	4		12
660			2	1	2	1					2			8
663				1	1	2					1			5
664				1	1	1					1			4
665				1	1	1								3
672							1							1
673						1								1
676						1								1
681					1	1					1			3
682					1	1					1			3
685					1	1								2
688					1	1								2
689					1	1								2
700	1													1
Gesamtergebnis	2	5	5	10	13	16	1	1	1	1	13	7	3	78

Figure 10: Which student has already successfully concluded which task?

10

⊟Marianne	**222**
⊟Biologie	**5**
Botanik	3
Entwicklg_d_Lebens	1
Zoologie	1
⊟Geografie	**11**
Aufbau_d_Erde	3
Erde	1
Geografie	1
Politische_Geo	2
Wirtschafts-Geo	4
⊟Geschichte	**6**
Urgeschichte	6
⊟Mathe	**149**
Figuren	31

Abb. 11: How are the tasks spread in the subjects? (especially interesting in schools with much time spent on individual free work)

The implementation of this project has cost us much energy and nerves. The collaboration with schools can be exhausting: Often the daily work squashes the existing willingness of innovation. Furthermore, in many cases the technical infrastructure is flawed, e.g. the availability of internet. But these experiences are also essential for us: It has no point to build a system that only works in schools perfectly prepared for it. The product has to be simple, intuitive and convincing. If it needs long training it needs to be redesigned, and most importantly, the benefits have to be obvious. Otherwise it will not be used.

Sustainability: What did we reach, what was the feedback and how do we continue?

We have managed to create a system in which the documentation of students' work is done along the way and most importantly by the students themselves. The data that emerge from this make analysis possible that supports teachers in considering their students' individuality better during the classes.

The documentation is done for tasks that either are taken from the book or defined by the teacher, making the electronically available material an individual e-school book. When systems like this prove to be useful in the class and get implemented this automatically generates a process of change in the culture of teaching and a change in the society's understanding of education. We want to contribute to an education in which children have the opportunity to develop their own potential, which we see as the prerequisite for a happy and balanced adult life.

During the duration of the project (spring 2016) 6 teachers and around 100 students worked with this system. In the autumn of 2016/17 it is available, as already mentioned, for around 40.000 students.

We received feedback from users (teacher and students during the pilot testing), donors and in the context of a variety of event like the yearly "roadshow" of the educational publishing hourse Lemberger in which it presents its innovations.

Teachers within the „Neue Mittelschulen" (new middle schools) specifically like that the system supports them in their documentation of the developments and activities. Furthermore, they see that the system makes free individual work phases more effective, because students receive immediate support and feedback and the teachers can keep the overview of who did and understood what. Also "smaller" features like the automatic translations of texts provided through google translator have been met with great enthusiasm, especially in classes with

students from a variety of backgrounds. The students were right away very open to the new system.

Respekt.net has made it possible for us to take a step further: we went from the simple documentation of the situation to the provision of content. Additionally to this step bringing forward the ideas and projects of Verein Offenes Lernen, it also gave us as an NGO the possibility to be financially more self-sustainable in the future and not dependent on external funding: We have found a market niche that we can fill with our services (e.g. entering books into our system). With this we hope to reach our high and self-defined goal: the advancement of individual potentials in education – because each child is different and learns differently.

Thank you

All donors who expressed interest in receiving a thank you received by email the data to enter their thank you packages. Additionally we asked them for some configuration data (e.g. name of the children, class) and by doing this we reached new users as well as more understanding of needed functions. Furthermore, all donors are mentioned on our page:
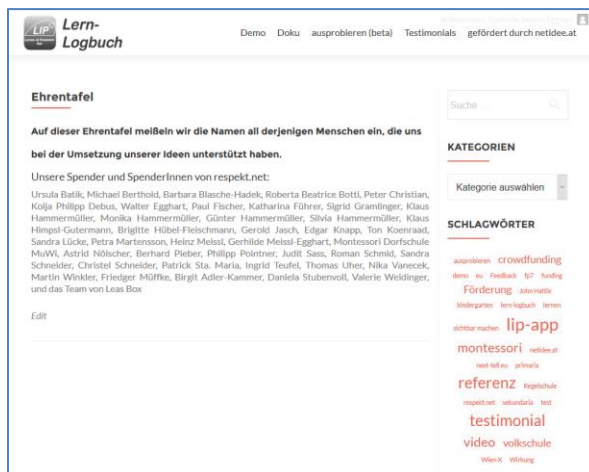

Figure 12: "Ehrentafel" (board of honors)

Use of the donated amount

As described in the budget the funding was used for paying the work put into development of the described system, covering 5 months (full costs/ full time equivalent) of creating the database and entering data, experience design/ field testing (PH Vienna and NMS Mautern) and impact research/ learning analytics. The budget consisted of 19 700 EUR. The uploaded journals of payments and the Figure 13 show that in the months between February and June 2016 the three people working on the project – DI Klaus Hammermüller, DI Gerhilde Meissl-Egghart and MMag.a Valerie Weidinger – in total received 19 932,39 EUR.

Auszahlungsjournal	Gesamtsumme
Feb 16	3251,63
Mrz 16	3366,73
Apr 16	3347,16
Mai 16	3347,16
Jun 16	6619,71
Summe	19932,39

Figure 13: Journal of payments during the duration of the project