Multilingual Virtual Talking Books (MuViT)

Supporting Multiliteracies, Plurilingual Awareness & Critical Thinking in the Primary Language Classroom

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***Abstract*— Multilingual Virtual Talking Books (MuViT) is a project that aims at the development, promotion and exploitation of multilingual virtual talking books in primary school. MuViT is computer-based storybooks in five different languages (English, German, Russian, Spanish, and Turkish). It has been developed for children at primary level. Corresponding tasks, aiming at language sensitivity and the development of language awareness, are designed to motivate learners to work with the books in at least two different languages. The tasks initiate cross-linguistic comparisons as they focus on inter- and intra-linguistic phenomena. Workshops for teachers and teacher trainees are organized to introduce them to the software and ensure the correct usage of it in class. The software has been tested and evaluated in terms of local feasibility and teacher's acceptance in all of the project partner countries. Moreover, an instrument for self-assessment, focusing on language awareness development, is developed during the project's lifetime. It has been found from the initial workshop that children are able to play a story and switch to other languages instantly. They like the 'player' because it is easy to use and both, the features and the story are interesting.**

***Index Terms*— Applications for language learning, multiliteracies, interactive code-switching, multilingual storybooks.**

I. INTRODUCTION

The current changes in culture as a result of globalization in a knowledge society raise new challenges in education. On one hand, there are challenges because of migration, for either teachers or students and, on the other hand, there are challenges for technology and media. Growing up in this context means having to deal with different languages, representations and media. Finding orientation in these contexts affords the ability to navigate new structures of either languages or of representations. This ability can be described as a combination of different literacies that allows mediated texts to be read in different formats such as written text or image etc. But it also includes having a basic awareness to analyze structures in diverse languages that are provided in diverse media.

Within the MuViT Project, computer storybooks has been developed that puts the term multi-literacies into practice: it supports multilingualism by taking into consideration the prior knowledge of learners, and is so doing fostering self-directed learning and life-long learning processes.

This paper first sketches the potential of a language didactic of multi-literacies in classrooms. In the second step, it details the design objectives and interactive functionalities of tools developed within the MuViT project. Thirdly, it illustrates which software development and activities are connected with the project.

II. BACKGROUND

When building the concept of the application, we planned to observe the communication strategies of multilingual learners. We intended to map out the model of interaction actions that fits to the behaviors of multilingual persons. In order to achieve this aim, indications from linguistics on exploring languages were analyzed with respect to observances from a broader range of different disciplines.

Stories provide narrative structures that are familiar in different cultures and languages. According to Hayden White, putting something within a narrative structure makes it meaningful and provides orientation in a complex and chaotic world. For the so-called emplotment, how order and relation is constructed is analyzed through using colligation and metaphors mapped on actions and events. Through stories a repertoire of narrative structures can be developed that is useful for organizing and understanding the world [1].

A broader range of different representations and modalities that enable rich self-expression extends the collection of narrative patterns. Paolo Knill used a model of intermodal dialogue that can be valuable when describing the potential of switching between different codes and media. He revealed that the translation of a problem from one representation into another representation activates the imagination and creative resource for self-expression and problem solving [2].

Self-expression in different media with different representations is also cultivated in the Reggio educational approach. Loris Malaguzzi affirmed this by stating that the hundred languages of a child should be supported in order to make use of learning, thinking, imagination and speaking. These multiple opportunities of expression support the

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construction of knowledge and the competence for a self-reliant exploration of the world [3].

Coming back to language learning, specific behaviors can be observed when children are faced with different contexts during a lesson. For example, in order to put something in a precise and coherent way, switching between different codes is used. Code-switching between different languages is an explorative attitude that fosters the ability to grasp the structures of different languages. Learning languages is a creative process with playful exploration and immersion coupled with intentional attempts of understanding structures. The requirements for our model of interactions for the application are supporting immersion, exploration, code-switching and multimodal representation.

Moreover, teachers point out that they do not feel sufficiently prepared to introduce and integrate computers into their classrooms. Additional ICT training courses would be necessary [8]. Research shows that more than 80% of pupils work with a computer at home on a regular basis, but only 33% work at least once a week with a computer at school [9].

The statements made for the United Nations Literacy Decade sum up the leading design idea of the project:

"Literacy is about more than reading or writing – it is about how we communicate in society. It is about social practices and relationships, about knowledge, language and culture. …" (UNESCO, statement for the United Nations Literacy Decade 2003 – 2012) [5].

III. PROJECT SETTING

The MuViT team members developed a concept for digitalized, multilingual talking books, integrating different activities for the development of language and cross-linguistic awareness, alongside a concept for an authoring tool enabling children to produce and share their own multilingual storybooks within the MuViT web community. Before the start of the MuViT project researchers in the field of first-, second- and foreign-language acquisition; teacher educators; teachers and IT specialists from Germany, Spain, Turkey, Latvia, and Russia were searching for different ways to put the multiliterate notion into practice [4].

A. Software Development

The development of a learning environment that consists of a story player, an authoring tool and a web community for support, exchange and teacher training are in the focus of the project [6]. The player provides a collection of stories represented in different modal representations and in different written and narrated languages. Through a complex but reduced interaction pupils aged from 8 to 10 can explore stories switching from one language to another language and between tag lines, audio narration and images. Based on the implemented interactions, it should foster explorative code-switching like multilingual persons use in communication. By this, pupils should learn languages – their own first, second and additional foreign languages. The implemented interaction coupled with stories in multiple languages should enhance language awareness through intra-linguistic tasks, cross-linguistic comparisons and self-reflection. The interactive switching should also support pupils' plurilingual development. The design interlinks the material multimodal and might foster functional literacy in different languages (e.g., foster pupils' reading and pronunciation skills); enhance multimodal, critical, and visual literacy and develop media competencies.

Besides the design of the application and the quality of the implemented materials teachers need to change their way of teaching to be able to make use of the potential of our application. In a workshop, our didactic partners encouraged teachers to overcome their "monolingual habitus" of language teaching.

The digitalized storybooks should empower language learners to interactively develop multiple literacies and language awareness. The software contributes to media education, inter- and transcultural learning processes, and fosters plurilingual development.

Right from the start, all project participants shared the belief that multilingual digital books can be a powerful teaching and learning tool for the language classroom. In this context we also agreed that besides "consuming" the stories children should get the opportunity to produce their own stories in different languages and share them with a selected group of other pupil-authors from all over the world through the MuViT web community and the MuViT authoring tool [4].

B. MuViT Player

MuViT Player contains computer-based storybooks in five different languages (English, German, Russian, Spanish, and Turkish). It has been developed for children at primary level. Children can decide in which language(s) they want to access the books; switching languages while reading is possible at any time. The interfaces of the player are illustrated in Figures 1 and 2.

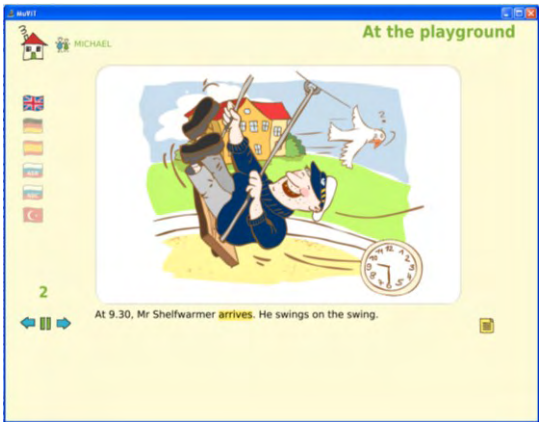

Figure 1. An interface of MuViT Storybooks for playing a story.

By clicking the sound button, children can also choose to listen to the narration parallel to their own reading. To avoid interference problems and to support struggling and non-native readers, a synchronous word-highlighting function is provided.

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A yellow block on the text as shown in Figure 1 is a highlighting function. There are five different languages provided. These languages are represented as a list of flags which can be clicked in order to select the active language. Corresponding tasks as illustrated in Figure 2, aiming at language sensitivity and the development of language awareness, are designed to motivate learners to work with the books in at least two different languages. The tasks initiate cross-linguistic comparisons as they focus on inter and intra-linguistic phenomena.

Figure 2. An example of an interface of a task which will be displayed after a story has been played.

C. MuViT Authoring Tool

A virtual space for pupils to express their ideas through a story is needed. This virtual creative production tool provides a space for young people to change their role from a simple user to a (co-)creator [7]. Therefore, we implemented a web-based authoring tool which offers uploading of self-written narratives in any language. With this tool, pupils together with their teachers or parents can upload their own narratives in as many languages as possible, add pictures and recordings and thus create their own multilingual virtual storybooks for other children all over the world. The story will be published on the MuViT web community. It can be downloaded and played by MuViT Player. Figure 3 illustrates the interface of the authoring tool. A story is created as a combination of text, images and/or recorded sounds. The story translations in other languages can be added later on by other users. This facility is designed to support collaboration in creating a story within the MuViT community.

D. MuViT Web Community

MuViT is characterized by an approach of participation and public accessibility. Therefore, we develop the MuViT web community. Here, information on the usage of the MuViT software at school and at home has been provided for pupils, teachers and parents. A forum for discussion and learning is provided in which synergies can occur and expertise can be exchanged.

Figure 3. The interface of the authoring tool

E. Didactical Setting

Several partners work together with schools and teachers. Through a web community materials and experiences are shared and updated between educators and developers. Our partners from language didactics conceptualized a setting for our application in the classroom. According to specific needs and contexts specific scenarios with specific settings were stated and then tested. This evaluation is still not finalized but the first results were used to build tutorials and materials for teacher training and online support. The teacher training includes an introduction to the theoretical background of multiliteracies and multilingual language learning.

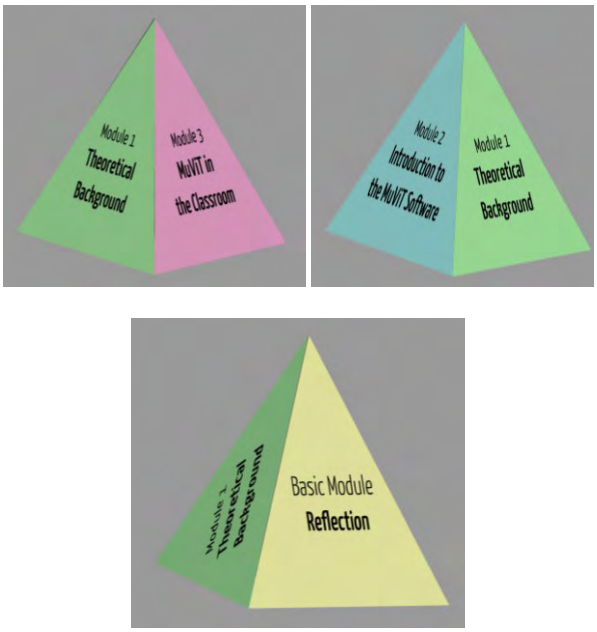

Figure 4. MuViT Pyramid

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We developed a pyramid that illustrates the development of the teacher training module. The MuViT Pyramid represents the framework for in-service teacher training, combining scientific experience and academic knowledge in the fields of multilingualism, language awareness, and multiliteracies with professional teacher education. It is assumed that professional training of future teachers is a core objective of higher education at university level [10, 11]. This pyramid, which is illustrated in Figure 4, consists of four parts:

- Basic Module: Reflection
- Module 1: Theoretical Background
- Module 2: Introduction to the MuViT Software
- Module 3: MuViT in the Classroom.

Examples of the didactical use of the application in the classroom are discussed. With a detailed tutorial, teachers can explore by themselves the structure and functionalities of a successful use of the software. Through an online support system from the community teachers can receive direct support for any difficulties they experience in using the software.

The didactical segment of the web community and the teacher training will be further developed and evaluated systematically in the next level of our project.

F. Workshop

In order to evaluate the design of MuViT Player, we ran several workshops with children and their teachers. One of the workshops was held at a computer laboratory of an elementary school. We did the workshop with three groups of children. We used several methods to analyze the workshop in order to get the results. Observations were made in order to understand how children worked and interacted with the software. To learn more about how the children feel and think about the storybooks we held a focus group discussion. We also analyzed the activity log file of the application to see the real activities of the children related to how many times they switched languages while playing the story and working on the tasks. Figure 5 shows a situation from the workshop.

Figure 5. A MuViT workshop at a school.

IV. DISCUSSION

From the workshop, we found that the children can play the story and do the tasks without any difficulties. Some children tried to switch from one language to other languages. This result was found from the observation and the activities log file as shown in Figure 6.

"Operations"	"Switch language"	"en"	"Tue Apr 17 2012 10:35:37 GMT+0200"
"View vocabulary"	"en"	"1"	"Tue Apr 17 2012 10:35:37 GMT+0200"
"View vocabulary"	"en"	"2"	"Tue Apr 17 2012 10:40:37 GMT+0200"
"Start Page"	"en"	"1"	"Tue Apr 17 2012 10:40:44 GMT+0200"
"Operations"	"text"	"off"	"Tue Apr 17 2012 10:40:55 GMT+0200"
"Operations"	"Switch language"	"de"	"Tue Apr 17 2012 10:40:59 GMT+0200"
"Start Page"	"de"	"1"	"Tue Apr 17 2012 10:40:59 GMT+0200"
"Operations"	"text"	"on"	"Tue Apr 17 2012 10:41:03 GMT+0200"
"Start Page"	"de"	"2"	"Tue Apr 17 2012 10:41:13 GMT+0200"
"Start Page"	"de"	"3"	"Tue Apr 17 2012 10:42:11 GMT+0200"

Figure 6. An example of an activities log.

On the first and fourth lines in Figure 6 it can be seen that a child switched languages to English and then German. It can also be seen that he read the story either with text or without text (sound only). This activities log is very useful for teachers to analyze how our application supports code-switching and code-mixing.

It was interesting that one child answered all the questions in her mother tongue yet played the story in another language. From the group discussion and information from the teacher, it was found that she is more confident in using her mother language to solve the tasks, but she likes to read the story in other languages. This finding also gives an indication that our application enables code-switching. However, we need to hold several workshops with children in different countries to obtain more valid data in order to evaluate our project. A number of workshops in different schools and countries are scheduled. We will use MuViT tasks, tests and observations to find out if pupils develop language awareness with the MuViT software.

It can be concluded that MuViT may become an innovative tool for plurilingual and media education at primary level. MuViT contributes to modern language-learning approaches as it supports autonomous, inductive and process- and product-

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oriented learning. MuViT offers a large field for different investigations – be it in the research area of language awareness, language development or the linguistic behavior of mono- and plurilingual learners. Also the teacher education programs in connection with the MuViT tools offer possibilities for new research activities in the field of teacher language awareness. Moreover, cognitive aspects of multimodal representations in the learning process could be discussed.

Finally, it is a strong desire of the MuViT team to search for further education areas and develop more multilingual books with different topics, tasks and aims for differing target groups at pre- and post-primary level.

V. FUTURE INVESTIGATIONS

The MuViT software and authoring tool will be supplied with a teacher's guide, which including general information about a multi-literacies pedagogy, an operating manual for the software, technical and methodological instructions on how to use the authoring tool as well as practical tips on how to integrate the software, the authoring tool, and the web community into classroom practice. In addition, different workshops will be arranged in each of the five partner countries to introduce the software and the authoring tool to a wide base of teachers and thereby establish the MuViT web community of expert users.

Furthermore, we plan to run workshops, conduct observations and interviews, and circulate questionnaires focusing on media competence and its development with the MuViT software including MuViT Player and the MuViT authoring tool.

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