GLOBAL excursion ↵

Extended Curriculum for Science Infrastructure Online

European Commission Seventh Framework Project
(Research Infrastructures Activity – Grant Agreement No. 283686)

D6.1 – Evaluation report on experiences of GLOBAL excursion materials and activities

04.09.2013
Final version – V 1.0

e-infrastructure

DOCUMENT CONTROL

Deliverable number:	6.1
Title:	Evaluation report on experiences of GLOBAL excursion materials and activities
Workpackage:	6
Status:	Final version V 1.0
Level of Dissemination:	Public
Date:	
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AMENDMENT HISTORY

Version	Date	Author/Editor	Description/Comments
V0.1	17.01.2013	Barbara Kieslinger, Josef Hochgerner	First draft of evaluation concept
V0.2	15.05.2013	Claudia Magdalena Fabian	Evaluation report of online questionnaire
V0.3	20.08.2013	Barbara Kieslinger, Teresa Holocher	Updated version; partner feedback included
V1.0	04.09.2013	Barbara Kieslinger	Final version

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Legal Notices

LIST OF ABBREVATIONS

Abbreviation	Description
AFM	Atomic Force Microscope
CICYT	Spanish Inter-ministerial Commission of Science and Technology
CMOS	Complementary Metal Oxide Semiconductor
CMS	Content Management System
CSIC	Spanish Council for Scientific Research
DBR	Doñana Biological Reserve
DBS	Doñana Biological Station
DNA	Deoxyribonucleic acid
FIB	Focussed Ion Beam Microscope
ICTS	Doñana Scientific Reserve as Singular Scientific and Technological Infrastructure
LMS	Learning Management Systems
PC	Personal Computer
PD	Participatory Design
ppt	Powerpoint presentation
Q&A	Questions & Answers
SEM	Scanning Electron Microscope
ViSH	Virtual Science Hub
WP	Work package

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Executive Summary

GLOBAL excursion aims to provide access to e-Infrastructure for teachers and their students via a Virtual Science Hub – ViSH, for more exciting and engaging science teaching. Thus the involvement of the teachers as an important stakeholder group has to be ensured from the very beginning of the project.

This deliverable describes the approach taken by the consortium to evaluate the activities performed on the ViSH and the results achieved during the first years of project runtime. With the deliberate decision to start with a participatory approach and co-design the ViSH from the very beginning with the users, constant feedback loops and evaluation activities involving teachers have formed an important part during the whole project and continuously influenced the appearance of the ViSH.

While the participatory design approach during the first year of the project has already been reported in detail in previous documents, this deliverable focuses on presenting the results from the user evaluation during the second year, which are based on an intensive testing of a stable publicly released version of the ViSH, which was launched at the end of 2012.

In addition to usability aspects, which have again been presented in another document (Deliverable *D2.4. Usability analysis report of second release*), the online questionnaire, which was distributed to all ViSH users and served as main evaluation instrument concentrated on aspects of usefulness as well as pedagogical aspects.

Generally the feedback from the users has been positive and teachers see great value of the ViSH for their future teaching. The idea of having access to high quality scientific content and the fact that they can interact directly with scientists and especially other teachers to reflect on the content seems appealing. The live sessions labelled "Meet the Scientists" have likewise received positive feedback on both sides, from the scientists as well as from the teachers.

On the drawbacks the most important aspect to mention is probably the fact that the ViSH – as any other new educational system – has to compete with a number of existing platforms and tools where teachers can equally access high quality content. One of the strategies in this project has thus been to create interfaces with other content repositories in order to allow the integration of external content to the eExcursions created on the ViSH. Given the popularity of the live events via MashMeTV the consortium partners have also decided to give event management a more prominent role in the final release of the ViSH and support the users in an easy way to manage and integrate live events such as the "Meet the Scientists" into their other ViSH activities.

With the feedback received so far and the final testing that is still ahead in the remaining months of the project a matured version of the ViSH addressing the needs of the users and utilising latest web technologies, including mobile access, will be available.

1 Introduction

Evaluation is core in the implementation process of innovative technologies as it gives valuable feedback to the designers and developers and provides evidence regarding e.g. the usefulness, usability and user acceptance of the service. It also delivers important data for the sustainability plan of the project results. Thus, the results of the evaluation process for the first two project years will be presented in detail in this document. Equally important however, additional information derived from the service assessment of the users will be reflected in other documents, such as the final upcoming deliverables that focus on policy advice and exploitation potentials.

This document describes our evaluation approach and results from various stages during the evaluation process. It covers the overall strategy, specific measures for data gathering and data analysis as well as main results.

Usability has been the focus of the deliverables D2.3 and D2.4. Thus this document will concentrate on presenting complementary results of the evaluation process, with a specific focus on the core implementation phase during the second project year.

In the following Section 2 we will thus present the evaluation strategy, followed by a short discussion of the different instruments that have been used during the different phases to collect user feedback in Section 3. Section 4 will give a short summary of the internal testing process, while Section 5 reports on the specific lead user testing of the first ViSH release. The most important Section 6 will then present in detail the results from the wider testing of the second release of the ViSH with feedback collected from 55 users that have filled in a detailed online questionnaire.

The conclusions at the end of the document will summarise the main lessons learned and give a short outlook about how the results will be utilised in the future as well as what remains to be done in terms of evaluation for the final project phase.

2 Evaluation strategy

The main aim of the evaluation exercise in this project has been to ensure the quality and user friendliness of the project's services and their improvements towards the identified user needs. Accordingly, evaluation results have been continuously reported back to the other work packages and especially the ViSH developers for any necessary adaptation.

In addition, the evaluation strategy in this project has been designed taking into consideration the following important parameters defined by the contextual constraints that the project is facing:

- Integrating the evaluation in the regular school curriculum
- Collecting feedback from project external stakeholders and considering their time constraints
- Evaluating work in progress and technical systems at beta version status
- Addressing potential language barriers amongst the participants from five European countries
- Collecting feedback not only on abstract descriptions of future systems but based on hands-on experiences from teachers (alone and from usage in class)

In Figure 1 below the evaluation framework presents an overview of the whole evaluation process.
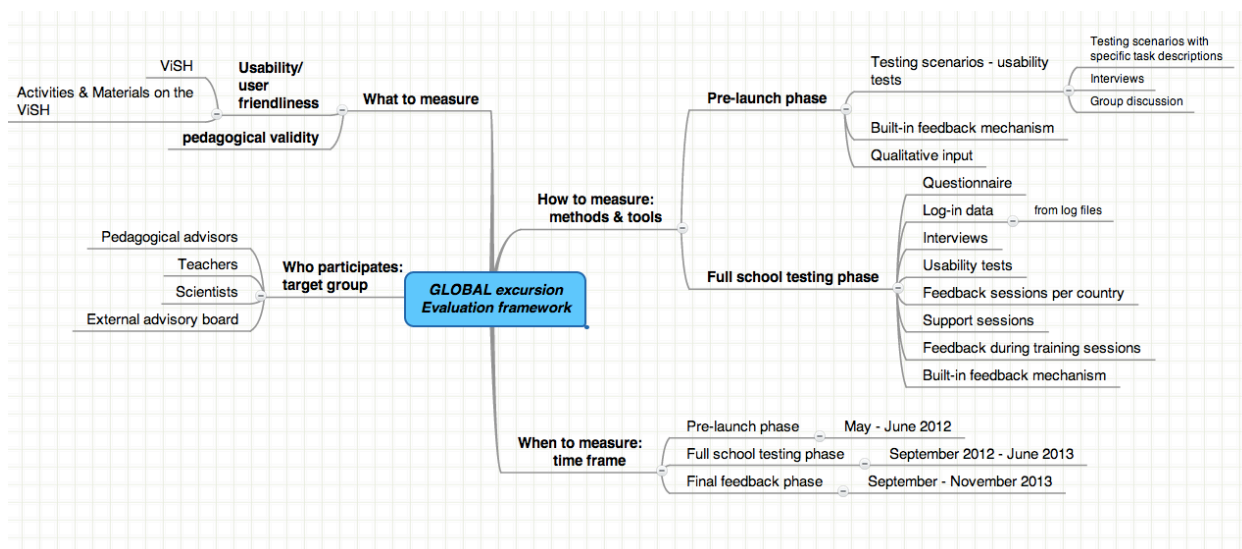
Figure 1: Evaluation framework

The evaluation has been concentrating on the ViSH and its functionalities. However, since the live events form an important element of the ViSH, MashMeTV as an integrated part of the portal has also been given attention during the evaluation process.

As the evaluation framework shows the target group includes a number of stakeholders. In terms of priorities the teachers have been the most important target group as they are also regarded as the main user group and can best assess the pedagogical validity of the portal.

In addition, scientists have been defined as the second most important group. Their feedback is however mainly reflected in the deliverables of WP3.

In addition, and as described in D2.3 and D2.4 continuous feedback was also collected via the integrated support mechanisms, such as the ViSH help-desk and specific usability and user experience methods. Please see D2.4 for the latest results on usability.

3 Methodology and evaluation instruments

The methodology for the evaluation of innovative technologies and new services classically includes qualitative as well as quantitative methods. Such a mixed methods approach has also been chosen in the case of this project. Based on the general evaluation framework as presented above in Figure 1 specific instruments were applied to collect data from the different target groups.

In the following Figure 2 a general overview of the different phases of the evaluation process is provided, which shows the three main phases of the implementation and respective evaluation process.

ViSH internal release
- Internal testing by consortium
- Scenario based lead user testing by pedagogical advisers

ViSH 1st public release
- Service validation in school context by teachers
- Service validation by scientists

ViSH 2nd updated version
- Service validation in school context by teachers
- Service validation by scientists
- Consolidation
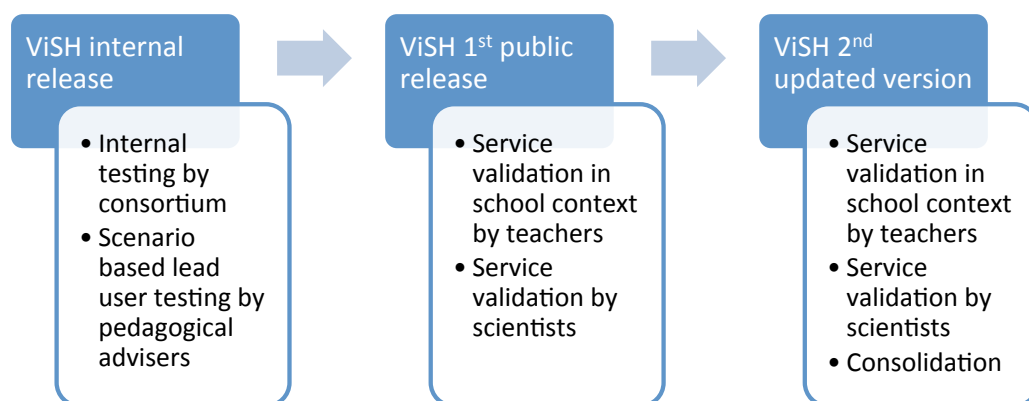
Figure 2: Evaluation overview

While the first release of the ViSH was mainly guided by internal feedback and the participatory requirements elicitation of lead users, namely the pedagogical advisers, the second and the third phase of the process include a wider base of users. The user base for validating the first and the second public version of the ViSH expands beyond the consortium boundaries. Concrete details regarding the number of users and their involvement will be given further below.

In the following the different instruments will be shortly presented.

3.1 Evaluation instruments

The first evaluation phase was performed within the consortium and its associated teachers. Mainly qualitative instruments have been used for this internal evaluation as the focus has been on a participatory design of the ViSH.

For the quantitative method, a questionnaire for the ViSH stakeholders was produced and widely distributed. Thus, in the second phase, an online survey was set up with LIME survey and has been made accessible to ViSH users via a weblink. All registered ViSH users have been invited via e-mail to participate in the survey and only invited respondents had access to the questionnaire. At least a total number of 30 respondents was expected.

The online questionnaire contained items to be answered on a response scale that are quantitatively analysed using SPSS, carrying out descriptive analysis on frequency distributions. The questionnaire also contained open questions providing space for written statements. Respondents are asked to answer in English. The answers are analysed with content analysis methods, identifying the most relevant aspects and, their frequencies are visualised with word clouds.

Complementary to the questionnaires, interviews were deployed to receive also qualitative results that normally cannot be captured by questionnaires. Thirdly, usability tests have been performed to give concrete feedback to the usage of the ViSH as well as the live events.

After the "Meet the Scientists" sessions a short questionnaire was also distributed to the participants to get quick feedback in order to improve these sessions that have turned out to be rather popular amongst teachers and their students.

In addition, feedback forms from specific events such as the training workshops as well as informal talks with the pedagogical advisors were collected.

During the final phase of the project evaluation online feedback sessions will be held, on a national level to facilitate the discussion between teachers and scientists in their mother tongue, as well as jointly with the pedagogical advisers.

Overall, the instruments applied during the different stages of the evaluation process can be summarised as following:

Type	Instrument	Evaluation phase
Qualitative	User scenarios	Phase 1
	Interviews	Phase 1 and Phase 3
	Artefact Walkthrough	Phase 1
	Online feedback sessions (group discussion)	Phase 1, Phase 2, Phase 3
	Informal feedback talks	Phase 1, Phase 2, Phase 3
Quantitative	Online questionnaire	Phase 2
	Written feedback forms	Phase 2 and Phase 3

3.2 Evaluation timing

The following time schedule has been planned for the different evaluation measures to be implemented during phase 2 and phase 3 of the evaluation process (starting from ViSH V1):
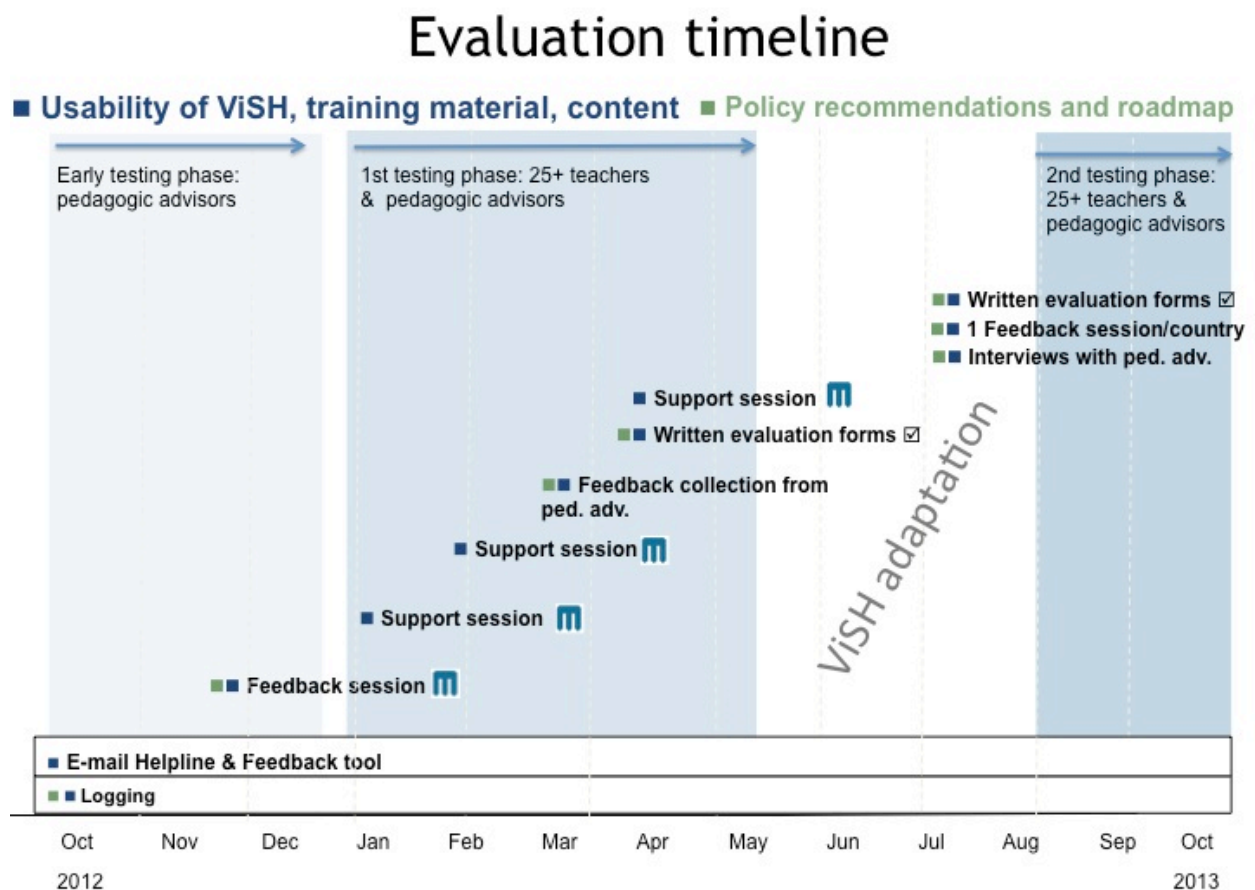

Figure 3: Evaluation timeline

At the time of writing this deliverable the ViSH adaptation is taking place. Thus there will be a final phase of the evaluation that will be reflected only in the final deliverables at the very end of the project.

Overall it should be stressed once again that the results of the continuous feedback collection have been reflected in many deliverables and have been influential in all project activities.

4   Internal testing and feedback

The first interactions with the users, where they were evaluating the ViSH concept, took place at the very beginning of the project. This led to the redesign of core features of the portal which has already been described in detail in previous deliverables such as D1.1.

In addition, an internal release of the ViSH was provided in the first project year. In order to prepare for the official launch of the portal to the wider public intensive internal testing took place amongst the consortium members as well as the core pedagogical advisers. The feedback mechanism built into the tool was used as the main source for reporting of bugs. Internal feedback was also given in informal mails and personal talks with the developers.

After this first round of internal testing and feedback a prioritisation of necessary improvements, bug fixes and additional features was done and led to the first public ViSH release in December 2012.

5 Lead user testing of first ViSH release

The first round of testing of the ViSH portal by our five lead users (or pedagogical advisers) has been based on scenarios, which are very much tied to practical concerns and common situations of our target group. The specific testing scenarios are based on the scenarios that had been elaborated by the pedagogical advisors during the first participatory workshop, which took place in Vienna in December 2011. The original scenarios are described in Deliverable D4.1 and Deliverable D1.2. For the testing purpose the scenarios had to be rewritten to allow the execution of all activities according to the functionalities realised in the first release of the ViSH. We provided detailed navigation instructions for the performance of the tasks to avoid users getting lost in specific tasks that are not yet supported by the ViSH.

User scenarios are "informal narrative descriptions" (Carroll 2000) about a persona or personas (hypothetical archetypes of actual users) and their activities, emphasizing the goals the user wants to reach with a specific product, the persona's expectations concerning particular systems and the most critical tasks that she wants to execute. Scenarios can be described in different ways including text, speech, photographs and video clips (Isacker, Slegers et al. 2009).

Scenarios in particular have turned out to be very useful techniques for the elicitation of user requirements when users lacked knowledge of technical language and different technologies (Eisma, Dickinson et al. 2003). The scenarios helped them to visualize the consequences of the introduction and usage of new technology, as well as to tie the usage of technology to practical concerns from their everyday life.

Thus scenarios can be used in very different settings. Seale and his colleagues (Seale, McCreadie et al. 2002) used scenarios to introduce the participants of a focus group into the topic under discussion, which was "the problems of mobility". They began the focus group session with scenarios, telling a typical story of an older person and the problems she has to struggle with in her house. Before the story was told every participant received one envelop with picture cards that represented sequences from this story. After the story the participants had to choose those three cards that represented activities that posed most problems to them. Then they discussed the different activities that were selected and possible technical/non-technical solutions. In a similar way scenarios were used by Eisma and his team (Eisma, Dickinson et al. 2003).

Immediately after the Walkthroughs a discussion on the experience was initiated. To allow a good documentation of the collected experiences from the scenario testing the test users were also asked to write down any specific difficulty and attractiveness right after each task and note suggestions for improvement for the later discussion.

After the remote testing of each participant and a first analysis of the feedback received, interviews were conducted and a group discussion was conducted online. The objective of this group discussion was to gain deeper insights regarding the perceived usefulness of the ViSH features, barriers to get involved, as well as possible future services and facilitating conditions that could help to overcome those barriers.

In the discussion following the testing phase we asked participants to think about possible additional scenarios where the developed service would fit into their working life. We investigated the usefulness of the presented services, and the problems to be encountered when applying them in the real working context of the end-users. We discussed if the ViSH services can already be implemented in real life situations as it is, with which consequences and whether and how it should be changed to make it more acceptable.

We see this group discussion as a collection technique that provides us with detailed insights into possible motivations and barriers to use the ViSH services and discuss suggestions for improvement. It also helped the participants to better understand their colleagues' needs and create a common understanding about the requirements of the future ViSH to be implemented at a larger scale across European schools.

6   Testing of open ViSh portal

As stated above, the first public version of the ViSH was launched in December 2012, which initiated the second evaluation phase. In the following the evaluation of this first public version of the ViSH will be described in detail.

6.1   Participants

The initial plan for the evaluation of the public ViSH portal was to include 30 teachers, 5 from each country including one pedagogical advisor per group who has a coordinating and guiding role for each national group. In the course of selecting the participants the Austrian group has been expanded to form a German-speaking group since teachers from Germany were also interested in participating. All teachers have signed an agreement with EUN and received a nominal financial compensation for the time spent on the project outside their school hours.

All participants have also signed the Informed Consent Form, which can be found in the Annex, and returned to EUN.

Since the user base of the ViSH has however extended beyond this core group of users, the consortium has taken the decision to open the evaluation and involve users beyond the core group of 25 teachers plus 5 pedagogical advisers to get additional feedback. Thus the online questionnaire has been sent to a wider number of registered ViSH users. In total 176 users were addressed out of which 55 filled in the questionnaire.

6.2 Results of online questionnaire

In the following section the results of the Global excursion teacher questionnaire are presented. The online questionnaire (see Annex 10.1), which was distributed to the registered participants of the ViSH-portal, is divided in six parts. In the first part of the questionnaire "*About yourself*", we wanted to gather some background information of the participants. In the second part, we tried to identify some *usage patterns* of ViSH and MashMe TV like for which subjects both of them are used for teaching in school, what kind of functionalities they like most and which they do like least. In the third part, we concentrated on usability issues, which are reported in the *Deliverable 2.4 Usability analysis*

report of second release, therefore this part is not presented in this deliverable again. In the fourth and fifth part we collected input about the perceived potential *benefits and barriers of ViSH* and in the last part we tried to get a small foresight of *future usage and relevance* of ViSH and MashMeTV for teaching in schools.

In total 55 participants from 17 different countries (see Table 1) filled in the **Global excursion Teacher questionnaire**, out of which 30 (54,55%) finished the complete questionnaire by answering nearly all questions, while 25 filled in a shorter version of the questionnaire. The following report shows an overview of the main results, for more detailed information about statistical facts like frequency tables and Spearman's rho table take a look in the Annex 10.3.

The online questionnaire was implemented with the open source online tool LIME survey and analysed with the statistical programme SPSS. The data is anonymised concerning to the participants details and only presented in an aggregated format.
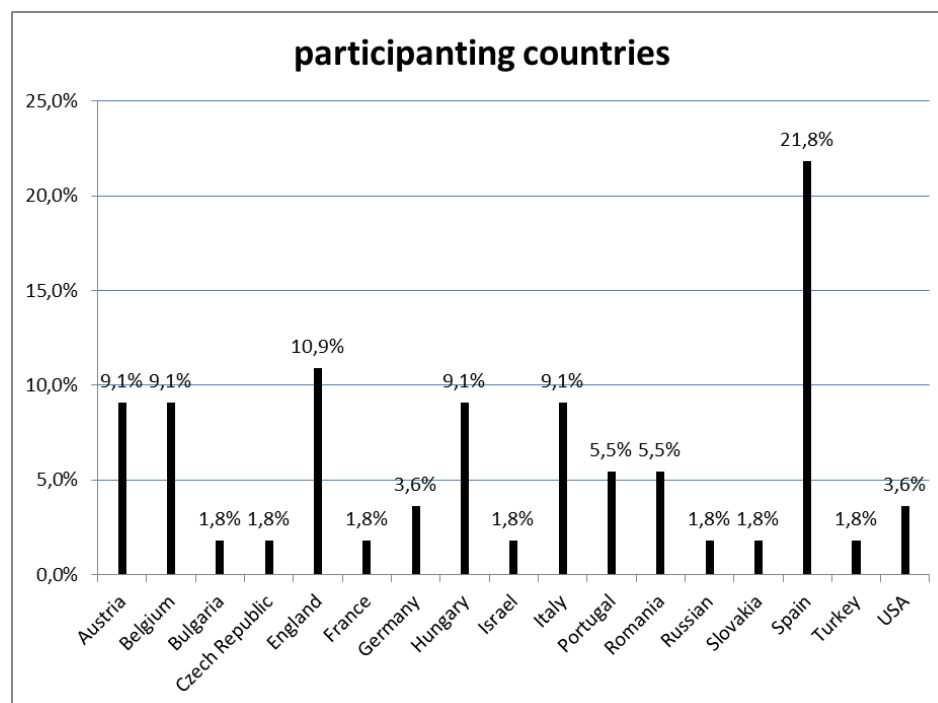
Table 1: participating countries (n=55)

6.2.1 ViSH users' profile

More than half of the ViSH users

- Uses at least once a day the computer for teaching in the class (63,27%)
- Is involved in at least two or more computer related projects at school (59,18%)
- Has a good to very good technical background (71,43%)

For their teaching practice, ViSH users normally use resources like (see Table 2)

- Texts/books (93,88%)
- Videos (89,80%)
- Images (89,80%)
- Presentations (83,67%)
- Webpages (77,55%)
- Audio files (30,61%)
- Other material (26,53%) like
  LRE repositories, didactical applications, elearning platforms, interactive
  instruments, laboratories (experiments), educational robotics, newspapers,
  collaborative games, simulations, virtual classes, cloud computing, web 2.0 storage,
  cloud storage
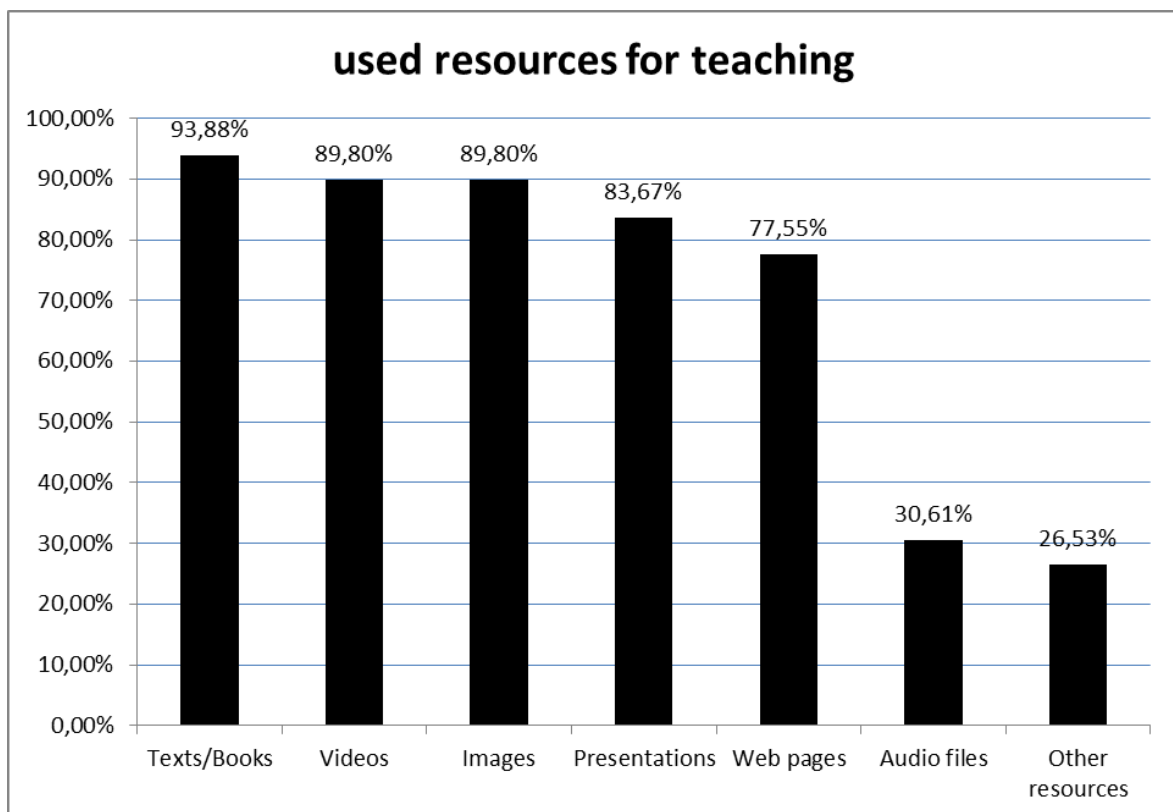
Table 2: used resources for teaching (n=49)

The respondents organise their resources from sources like (see Table 3):

- Google (85,71%)
- Video hosting services like YouTube, Vimeo (85,71%)
- Official books (79,59%)
- Public online educational repositories (71,43%)
- Related books (59,18%)
- Image hosting services like Flickr, Picasa (40,82%)
- Repositories from own centre like school, high school (36,73%)
- Private online educational repositories (20,41%)
- Other resources (12,24%)
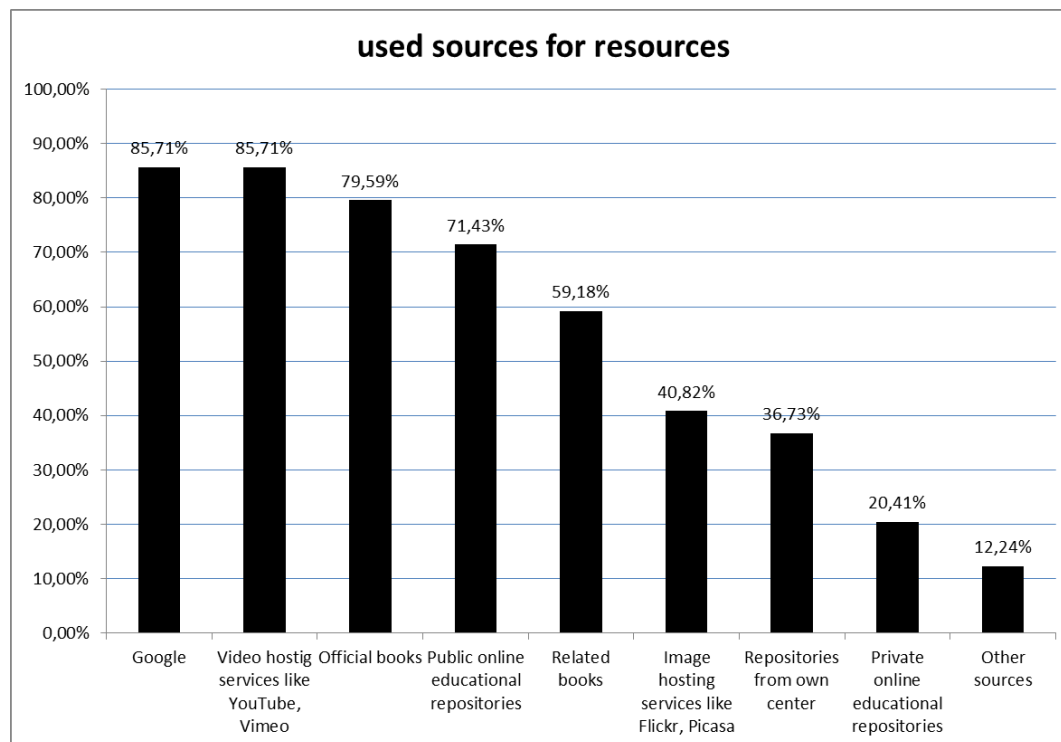
Table 3: used sources for organising resources (n=49)

Tools for creating teaching resources are (see Table 4)

- Presentation programs like Power Point and Keynote (95,92%)
- Word processor like Word (91,84%)
- Image editing programs like Photoshop and Paint (63,27%)
- Online authoring tools like Prezi (57,14%)
- Spreadsheet program like Excel (55,10%)
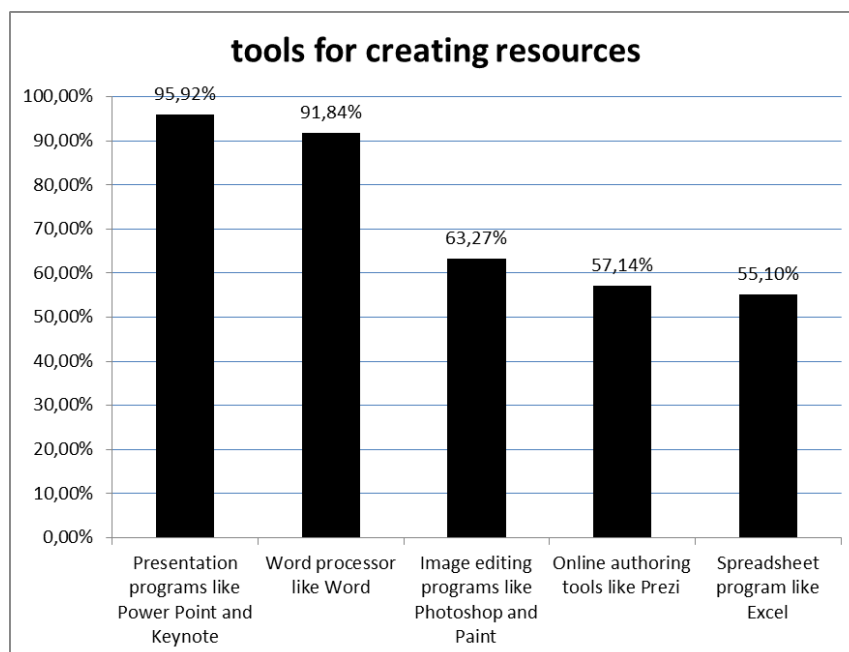
Table 4: used tools for creating teaching resources (n=49)

6.2.2   ViSH patterns

ViSH and MashMeTV are mainly used for subjects like Physics (45,24%), Biology (42,86%) and Chemistry (33,33%), but also for subjects like Geography (16,67%), Languages (16,67%) and Mathematics (9,52%). In the category for "*other subjects*" (52,38%) the participating teachers also mentioned subjects like ICT and Computer Sciences, Astronomy, Natural and Environmental Sciences and Sciences for the modern world (see Table 5).
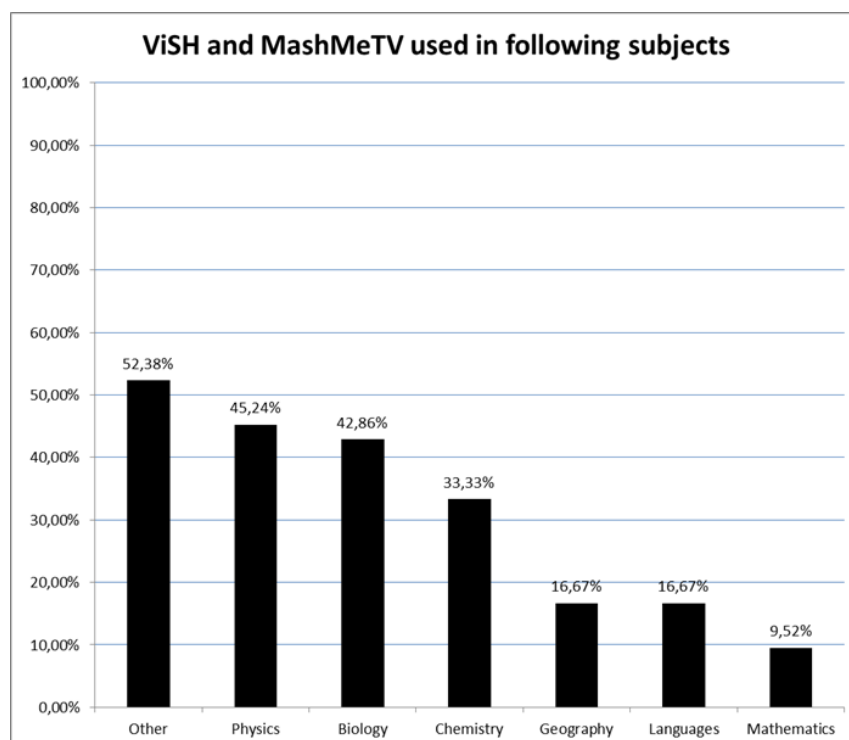
Table 5: used subjects for ViSH and MashMeTV (n=42)

To find out more about the most frequently conducted activities on the ViSH, the participating teachers were asked to prioritize a set of activities according to how often they performed it. The following list shows only the two most selected items for each ranking from 1 to 9. For more detailed information, please take a look on the frequency tables in the Annex 10.3.

Ranking 1:
- I use existing excursions (39,29%)
- I upload resources (35,71%)

Ranking 2:
- I use existing excursions (20,00%)
- I connect and communicate with other teachers (20,00%)
- I clone and adapt existing excursions (16,00%)
- I create excursions (16,00%)

Ranking 3:
- I clone and adapt existing excursions (20,83%)
- I create excursions (20,83%)
- I create quizzes (16,67%)

Ranking 4:
- I create excursions (20,00%)
- I clone and adapt existing excursions (15,00%)
- I use MashMeTV for live sessions (15,00%)
- I connect and communicate with other teachers (15,00%)

Ranking 5:
- I create flashcards (26,67%)
- I create quizzes (26,67%)
- I use MashMeTV for live sessions (20,00%)

Ranking 6:
- I uploaded resources (27,27%)
- I clone and adapt existing excursions (18,18%)
- I create flashcards (18,18%)
- I create quizzes (18,18%)

Ranking 7:

- I connect and communicate with other teachers (27,27%)
- I connect and communicate with scientists (27,27%)
- I used existing excursions (18,18%)
- I use MashMeTV for live sessions (18,18%)

Ranking 8:

- I connect and communicate with other teachers (30,00%)
- I connect and communicate with scientists (20,00%)
- I use existing excursions (20,00%)

Ranking 9:

- I create flashcards (33,33%)

The listed items above show, that the participating teachers used the ViSH for accessing already existing excursions for their teaching in class, and cloning and adapting them according to their special needs. They also created own excursions and quizzes and used MashMeTV for some live session events. Being in contact with other teachers and communicate with them was an activity frequently conducted as well. The communication with scientists, the use of flashcards and the upload of own resources were activities which respondents got involved in less frequently.

Via an open question the teachers were also asked to explain in their own words, what they like most of the ViSH. The answers were put in categories and illustrated in a wordle-figure (Figure 4):

Figure 4: wordle-image - categories of "I like ViSH most for"

Most of the participants mentioned that they like the excursions on ViSH and the possibility to share resources and information with others. They also like the idea to connect their students with scientists and to have the possibility to be in contact with scientists or with other teachers. From this qualitative feedback we see that this link between scientists and the classroom is an important aspect. The low number of activities, which were conducted on the ViSH and related to this aspect, can be explained by the fact that "Meet the Scientists" Sessions were only offered 3 times in this initial phase. From the positive feedback regarding these sessions we defined a set of new requirements for a live-meeting planner, which will be released in version 2 of the ViSH.

One teacher mentioned that the ViSH is broadening the curriculum by extending the range of activities. For some teachers ViSH is a new tool and they need some time to get more familiar with it. Others think that ViSH is easy to use and provides interesting material for teachers as well as for students like uploaded resources, live events (videos), MashMeTV and images. In addition, ViSH offers the possibility to be part of the science community via its networking tools.

Apart from asking the teachers about what they do like most they were also asked what they do like least. The open comments were also categorised (see Figure 5) and summarised as follows.

Figure 5: wordle-image - categories of "I do not like ViSH for"

Although the teachers noted in the open question before, that they like resources most, the resources on ViSH were also criticized. Some of them had problems in uploading and finding them and are not sure, if students could handle the English spoken videos and materials. Some respondents had also a critical view on MashMeTV due to some instability in the service (which might however be due to unstable Internet connections on the users side). Some respondents did not appreciate the concept of flashcards and generally the participants were sensing a lack of resources. Some of them had also problems with the interface and wishing more clarity and simplicity for a better orientation on the platform. They also want a better classification in order to manage the material and finding activities.

One teacher is sceptical if students are really motivated to look for material and resources on ViSH on their own.

6.2.3   Potential benefits

To identify the potential benefits of ViSH, the teachers were asked questions about the ViSHs' relevance for their teaching in practice. 61,29% stated, that the working method presented by the ViSH fits *very well* or *rather well* into their accustomed teaching culture. 19,35% said *neither well nor badly* and another 19,35% teachers think that the ViSH fits *rather badly* or *very badly* to their current teaching method (see Table 6).
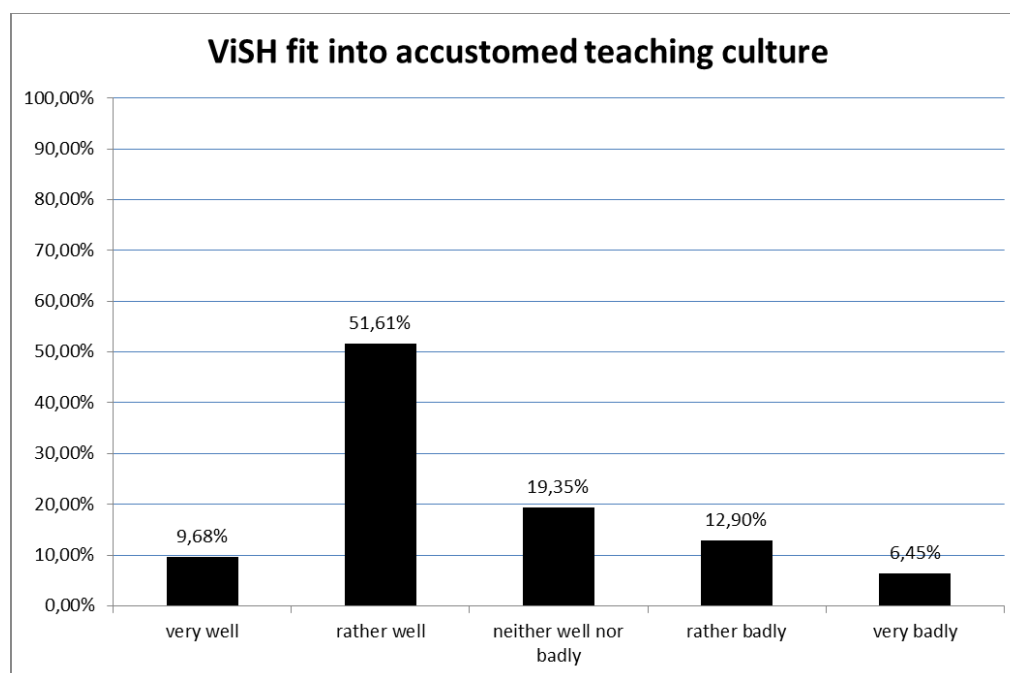
Table 6: ViSH fit into accustomed teaching culture (n=31)

38,71% of the teachers stated that the resources and excursions on the ViSH fit with the curriculum they are expected to cover, while 29,03% think, that the material is not really useful for their curriculum (sum of category *rather bad fit* and *very bad fit,* see Table 7), 32,26% gave a neutral rating (*neither good nor bad fit*). The teachers argued, that currently not enough resources and excursions could be found on ViSH. Besides this, some of them have a very specific curriculum like vocational training for adults or technology in secondary school and for that reasons they are not able to use the existing material there.

On the other side, some teachers use the ViSH to show their students the usefulness of the Internet for learning purposes and how they could search for useful material on their own. The ViSH gives students a good opportunity to learn English and offers a valuable possibility to extend the existing curriculum at school. Country specific excursions and resources like in UK are very useable, since they are sharing the same course of instruction.
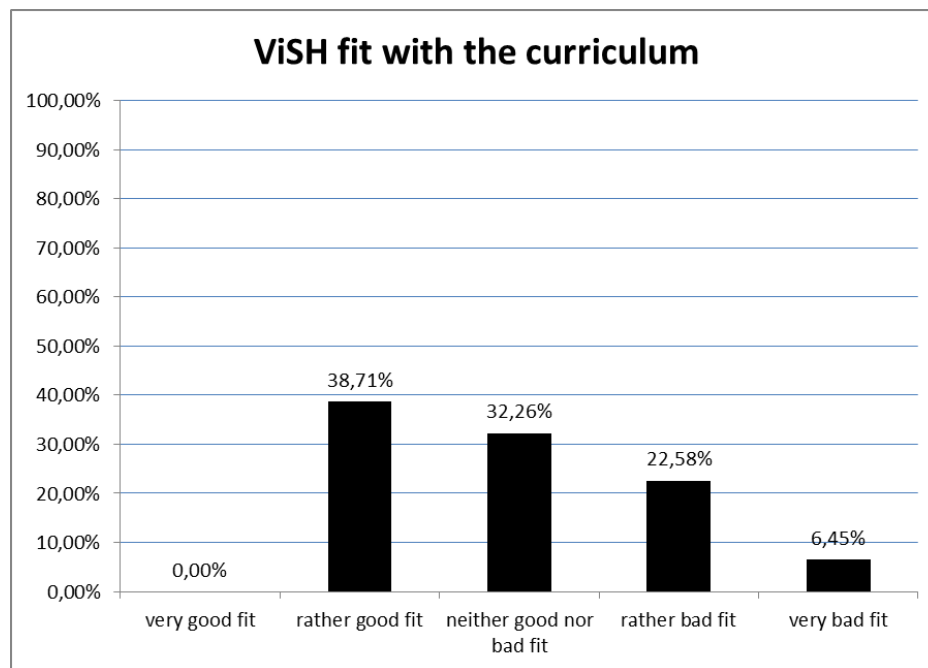
Table 7: ViSH fit with the curriculum (n=31)

63,41% of the teachers think that the ViSH could be *very effective* or *rather effective* in helping students in reaching their learning goals according to the lessons plans, while only 14,64% believe, that ViSH is *rather ineffective* or *very ineffective* for being an supportive tool for that purpose. 21,95% teacher gave a neutral statement with *neither effective nor ineffective* (see Table 8). Respondents explained that the quality of the resources on the ViSH needs improvement and relevant content could also be found quicker on Google or is already provided on other programs like *dot.learn*, which offers more possibilities. On the other hand, some teachers said it is good for students to deal with different tools and therefore they consider ViSH as a good preparation for the objectives of the real world. As long as the students find appropriate and interesting content in the right way at the right time, it could be very effective for their learning.
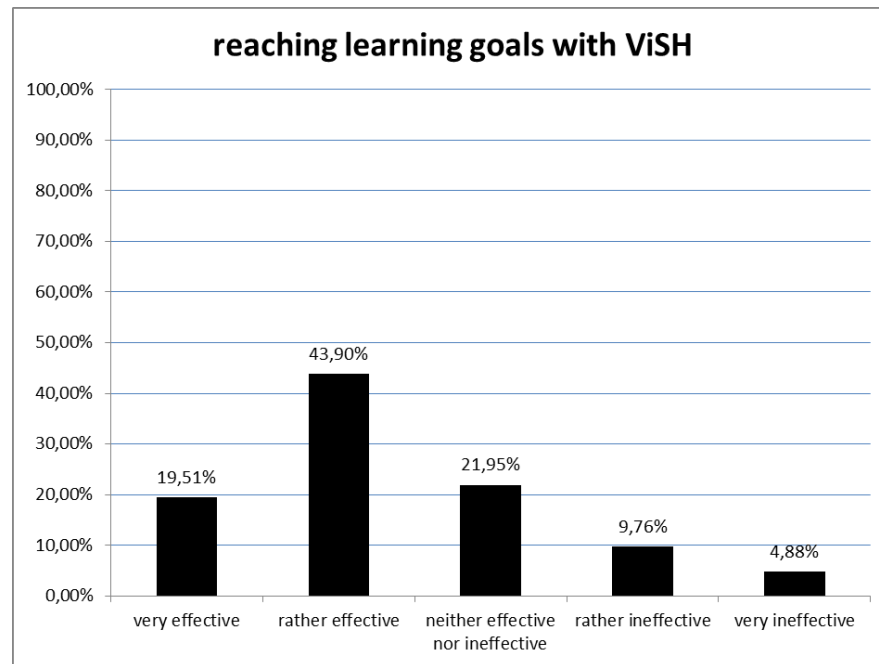
Table 8: reaching learning goals with ViSH (n=41)

73,33% of the teachers think that the ViSH is *very effective* or *rather effective* in supporting them to create exciting, stimulating and motivating teaching materials for their students. Only 13,33% believe, that ViSH is *rather ineffective* or *very ineffective* for such a purpose, 13,34% are indifferent by voting *neither effective nor ineffective* (see Table 9). In their comments respondents said, that the combination of different tools, connecting formal learning with informal learning, sharing ideas and having access to new material is motivating for their students. However, there are already other free tools like *slide rocket, animoto, vuvox, voki* and *SCORM* for dealing with excursions, phone apps like *gflash+* for creating quizzes and flashcards and plenty of content can already be found on *Google* when looking for the respective keywords.

creating exciting content for students with ViSH
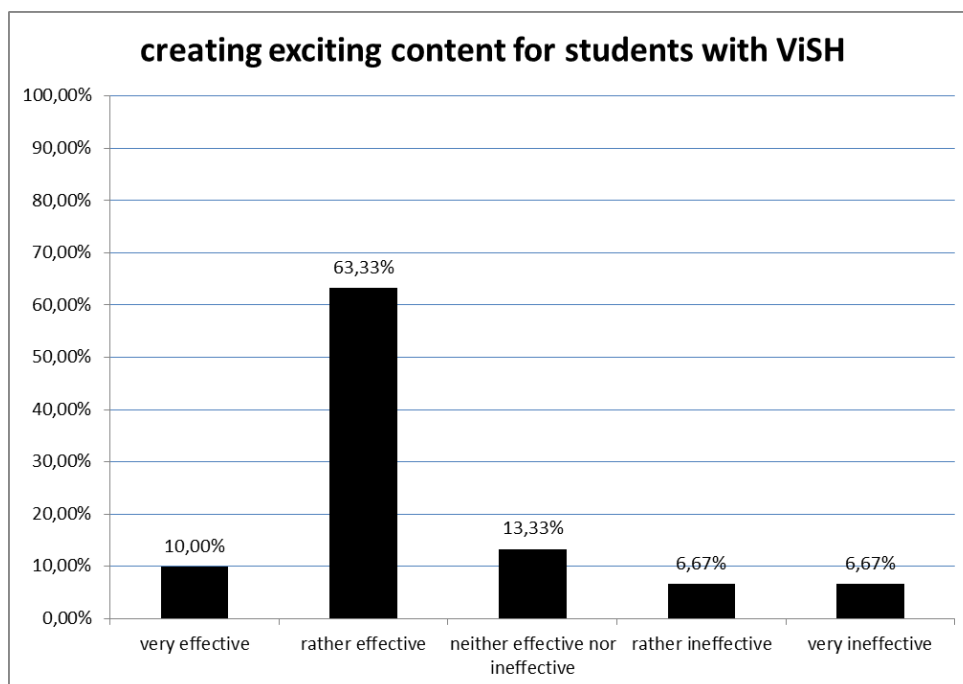
Table 9: creating exciting content for students with ViSH (n=30)

69,23% of the teachers believe, that the created material on ViSH increases the students' interest in science (sum of category *very effective* and *rather effective*), while only 7,69% think that the ViSH is *rather ineffective* or *very ineffective* for attracting students' interest for science. 23,08% gave a neutral rating (*neither effective nor ineffective,* see Table 10). Looking into the open comments, the teachers said that the ViSH has an attractive format for students with interesting material and gives them the possibility to participate in the learning process. Interestingly one teacher stressed that the event with the microscope, which did not work well at the end due to technical problems, triggered nevertheless an active discussion and lots of questions from the students' side. With regard to this specific question in the survey some teachers noted that this question was asked too early, since they haven't created any material on ViSH so far.

increases the students' interest in science
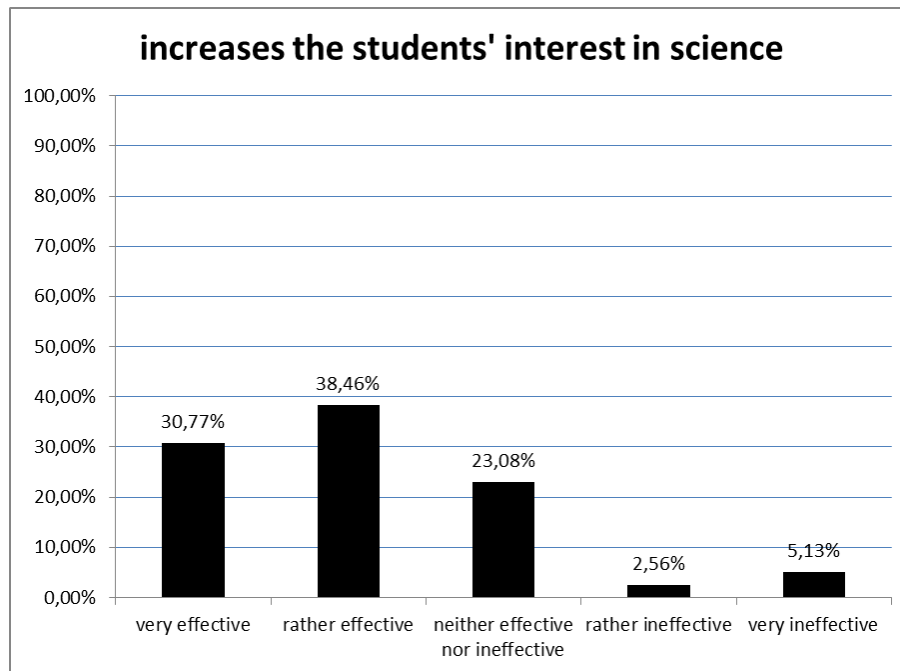
Table 10: increases the students' interest in science (n=39)

66,67% of the teachers think, that ViSH is supporting them *very effectively* or *rather effectively* to create teaching material, which helps students better understand science, 20,00% gave a neutral rating and 13,34% stated that ViSH is *rather ineffective* or *very ineffective* in creating such teaching material (see Table 11). In some comments the teachers explained that it is very easy to use ViSH and create resources for their teaching, but it is also interesting to find material like images, videos or diagrams. One teacher said that it depends on the topic of the material. General topics are already prepared in advance but it would be nice to get material about current topics.
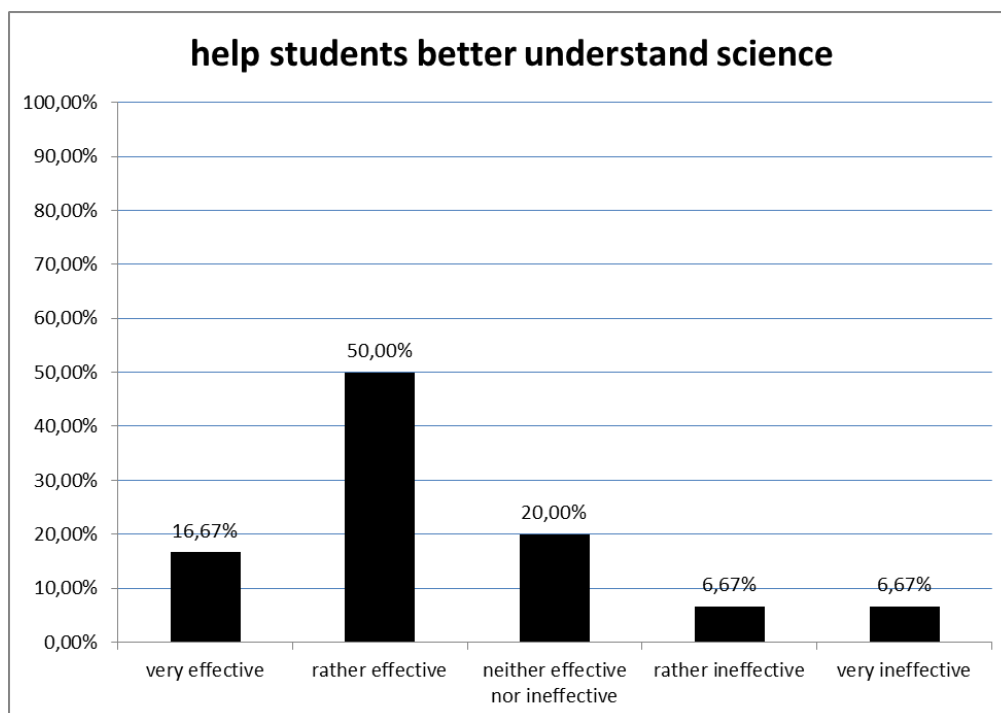
Table 11: help students better understand science (n=30)

Asking the teacher, how effective or ineffective the ViSH is for creating teaching material which is increasing the students' critical capacity, 36,66% think it could be *very effective or rather effective,* 56,67% are not sure (*neither effective nor ineffective*) and 6,66% say it is *rather ineffective* or *very ineffective* (see Table 12). In the open comments, the respondents only noticed that they at this stage of involvement didn't know how to rate this question, but mainly the critical capacity depends on the excursions and activities on ViSH, not on the capabilities of ViSH itself.
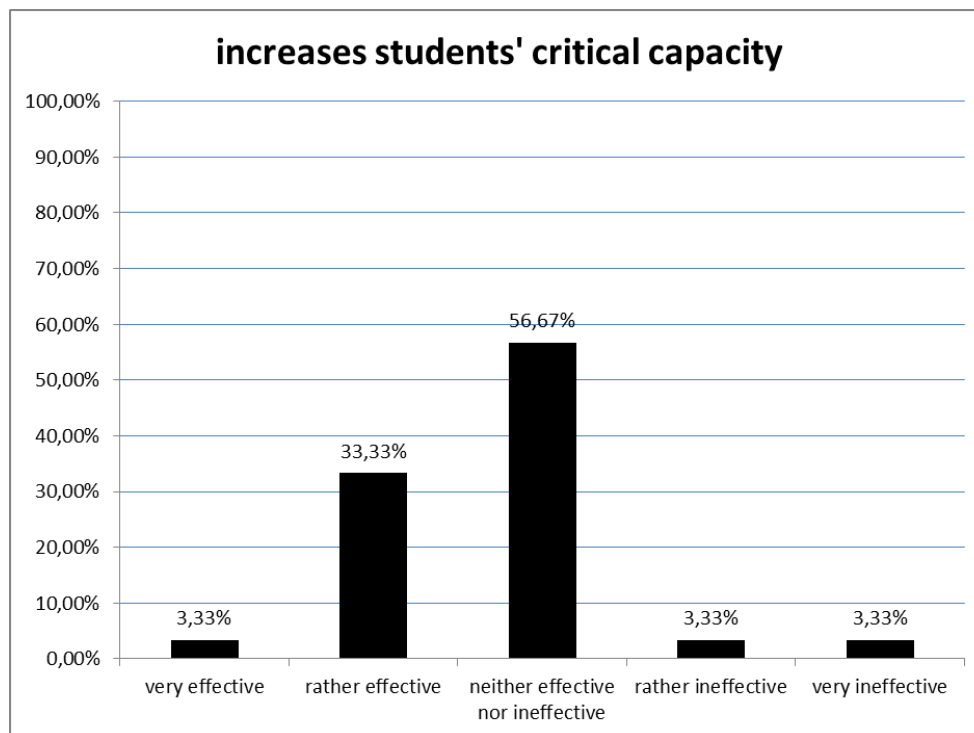
Table 12: increases students' critical capacity (n=30)

Generally it can be summed up that the ViSH fits into teachers' accustomed teaching culture, but not necessarily into the curriculum, which they have to cover. ViSH seems to be very or rather effective in helping teacher to create exciting, stimulating and motivating teaching material for their students, which increases the students' interest in science, helps pupils to understand science better and to reach the learning goals. However, respondents are unsure how effective or ineffective ViSH is in facilitating the creation of teaching material, which also increases the students' critical capacity. What the results from the questionnaire showed is that the more teachers think that their students' interest increases for science with the support of ViSH, the more likely their students could reach their learning goals according to the lessons plans (Spearman's rho 0,577[1]). As already mentioned from the qualitative feedback above, even when the live session with the microscope did fail, the session itself triggered questions from the students' side and raised interest for the topic.

Evaluating the potential benefits of ViSH, the teachers were also asked about their already established contacts there. The following tables shows (Table 13), that the teachers have mainly established contacts with other teachers, where 20,00% indicated "*yes a lot*" and 53,33% said "*just a few*". Looking at the responses regarding to established contacts with scientists, 26,66% teachers said "just a few". Comparing the figures of the answer option "no contacts", 73,33% teachers have no contacts to other scientists and 26,66% to other teachers.

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[1] Detailed table in the Annex 10.3
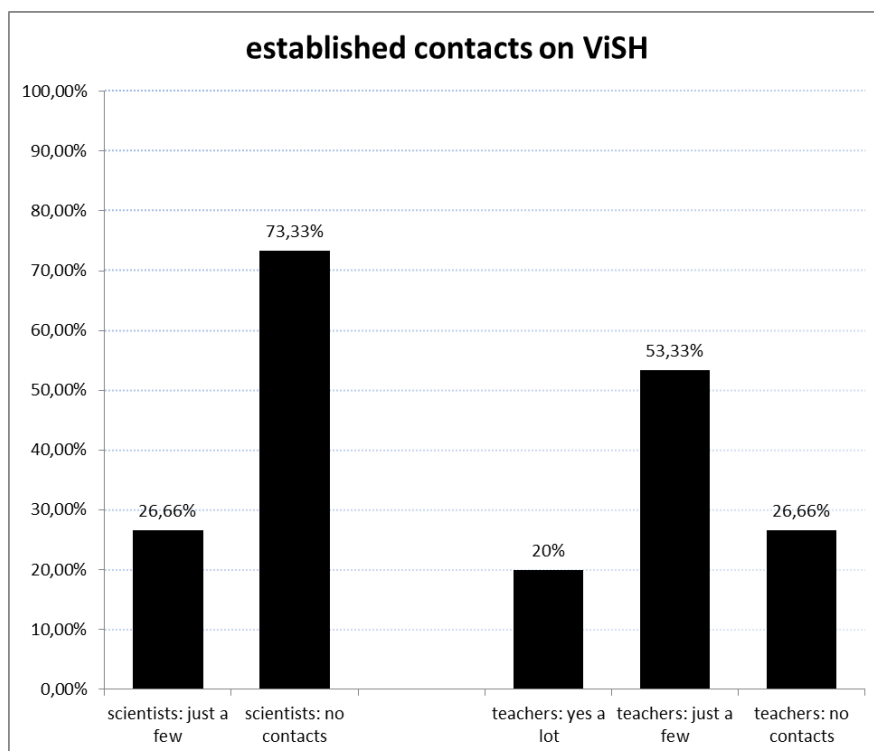
Table 13: established contacts on ViSH: scientists and teachers (n=30)

In sum, 66,66% teachers said that establishing contacts with other scientists is *very* or *rather important*, while 30% think it is *neither important nor unimportant* (Table 14).
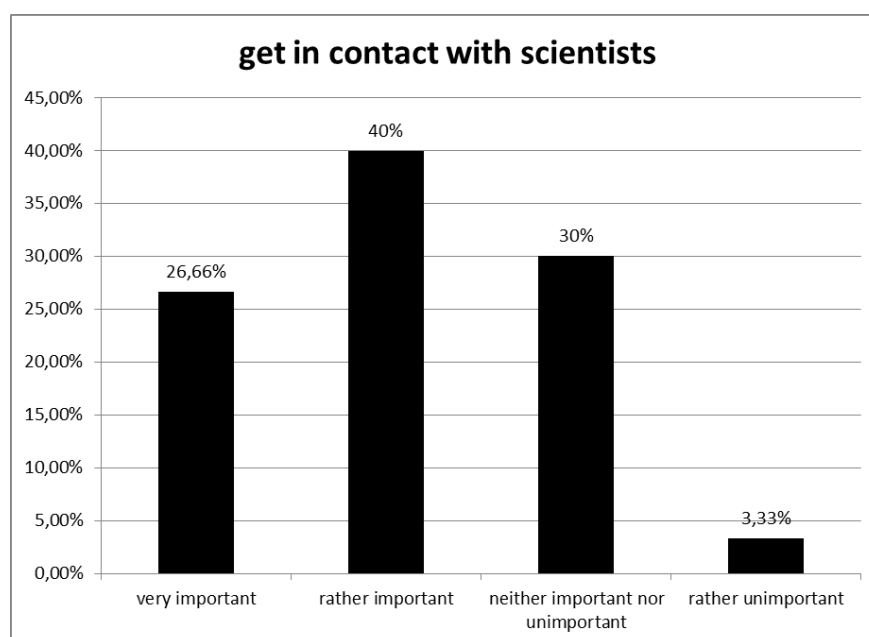
Table 14: importance of scientists' contacts (n=30)

Compared with the responses related to the teachers' connections, 83,33% think that getting in contact with other teachers is *very or rather important*, while 13,33% think it is *neither important or unimportant*.
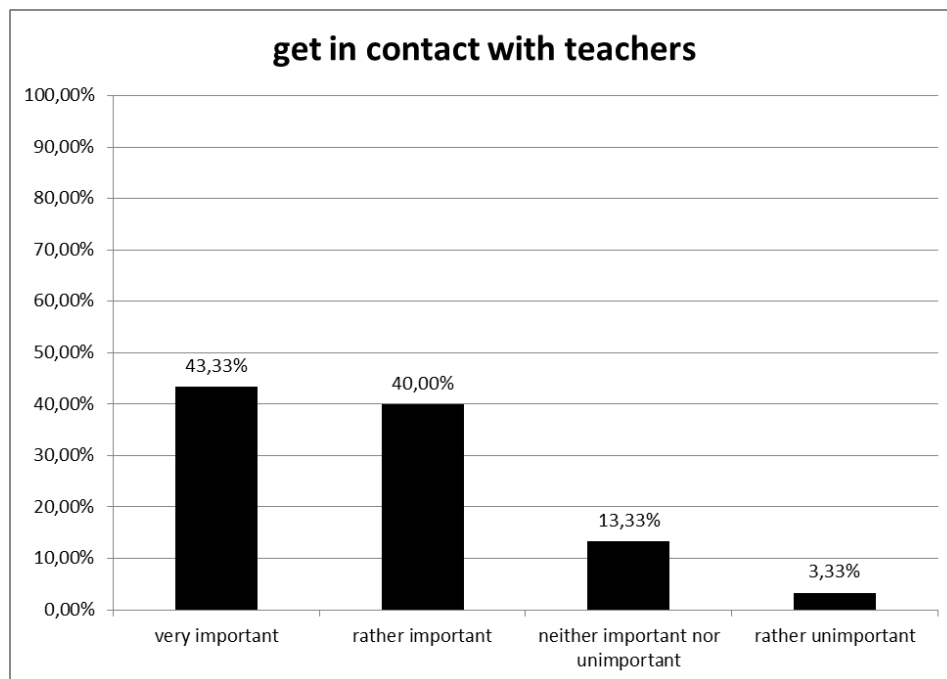
Table 15: importance of teachers' contact (n=30)

Looking at the cross table for scientists' connections (Table 16) among those teachers who said that contact with scientists is *very important*, 37,5% have already established a few contacts, 62,5% have not established any contact yet. Amongst those who said that contacts to scientists are *rather important*, 25% have established already a few contacts. So obviously the more teachers value to contact to scientists, the more they interlink on the ViSH. Nevertheless it has to be said that only a view scientists very presented on the ViSH during the first phase of the website runtime.

How important is the fact that you can get into contact with scientists on the ViSH for you as a teacher?							
			contact with other scientists is important				
			very important	rather important	neither important nor unimportant	rather unimportant	TOTAL
established contacts with other scientists	just a few	absolute values	3	3	2	0	8
		% within important contact scientiets	37,50%	25%	22,22%	0%	26,66%
	no contacts	absolute values	5	9	7	1	22
		% within important contact scientiets	62,50%	75%	77,77%	100%	73,33%
	TOTAL	absolute values	8	12	9	1	30
		% within important contact scientiets	100%	100%	100%	100%	100%

Table 16: cross table importance to get into contact with scientists/established contacts (n=30)

Looking at the cross table for teachers' connection (Table 17) 30,76% have established a lot of contacts and think it is *very important*. 53,84% think it is *very important* too, even though they have only few contacts established at the moment. From the teachers with a few connections, 50% think it is *rather important* and other 50% think it is *neither*

important nor unimportant. Again showing that the more teachers value the connections with other teachers, the more they are already linked to teachers on the ViSH.

How important is the fact that you can get into contact with other teachers on the ViSH for you?						
			contact with other teacher is important			
			very important	rather important	neither important nor unimportant	rather unimportant	TOTAL
established contacts with other teachers	yes, a lot	absolute values	4	2	0	0	6
		% within important contact with teachers	30,76%	16,66%	0%	0%	20,00%
	just a few	absolute values	7	6	2	1	16
		% within important contact with teachers	53,84%	50,00%	50,00%	100%	53,33%
	no contacts	absolute values	2	4	2	0	8
		% within important contact with teachers	15,38%	33,33%	50,00%	0%	26,66%
	TOTAL	absolute values	13	12	4	1	30
		% within important contact with teachers	100%	100%	100%	100%	100%

Table 17: cross table importance to get into contact with teachers/established contacts (n=30)

In general the network with other teachers is more frequently established and also more valued as the network with scientists. These results fit with the ranking list of ViSH usage patterns, where "*I connect and communicate with other teachers*" is among the most two selected items in the ranking list 2, 4, 7 and 8, while "*I connect and communicate with scientists*" is only in the ranking list 7 and 8 (see 6.2.2 ViSH patterns).

So we learned that teachers are interested to have direct contact with scientists to organise live-meetings for their students and allow students to have this "hands-on-experience" with scientific research. But scientists do not necessarily need to be part of teachers' social networks.

6.2.4 Potential barriers

In order to get more insights about potential barriers in using the ViSH, the teachers were asked about

- Technical equipment at school
- Translation in the local language
- Quantity of science content on ViSH
- Quality of science content on ViSH

50% of the teachers perceive the existing technical equipment in their school as a *very serious barrier* or *quite some barrier*, while the other 50% think that their equipment is *no great barrier* or *no barrier at all* (Table 18).
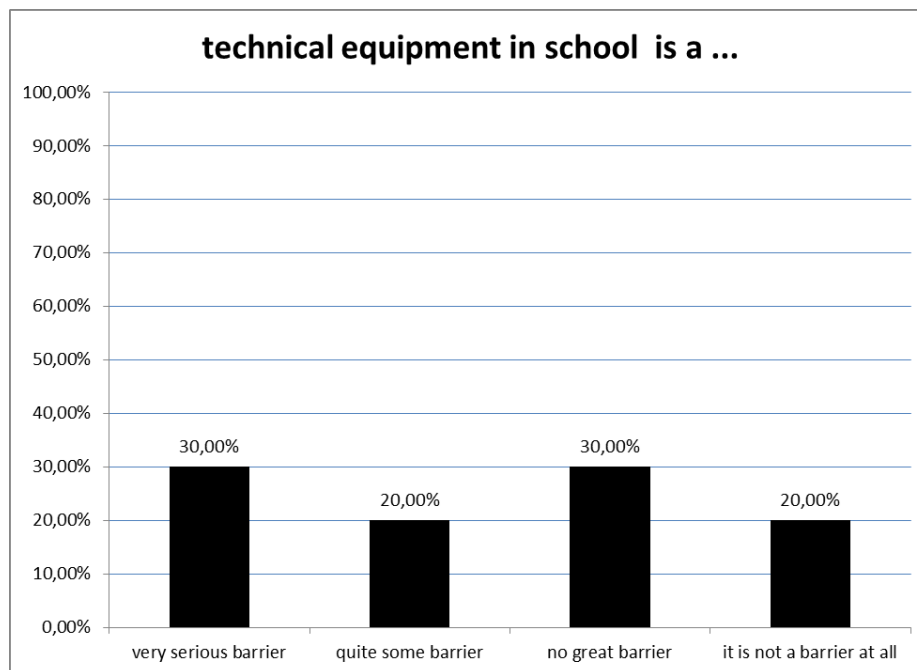
Table 18: technical equipment in school (n=30)

Concerning the language, 90,00% of the teachers think that it is *very important* (73,33%) or *rather important* (16,66%) to translate the ViSH into the pupils' local language. Only 6,66% of the respondents said, that the translation of ViSH is *very unimportant* for them (Table 19).
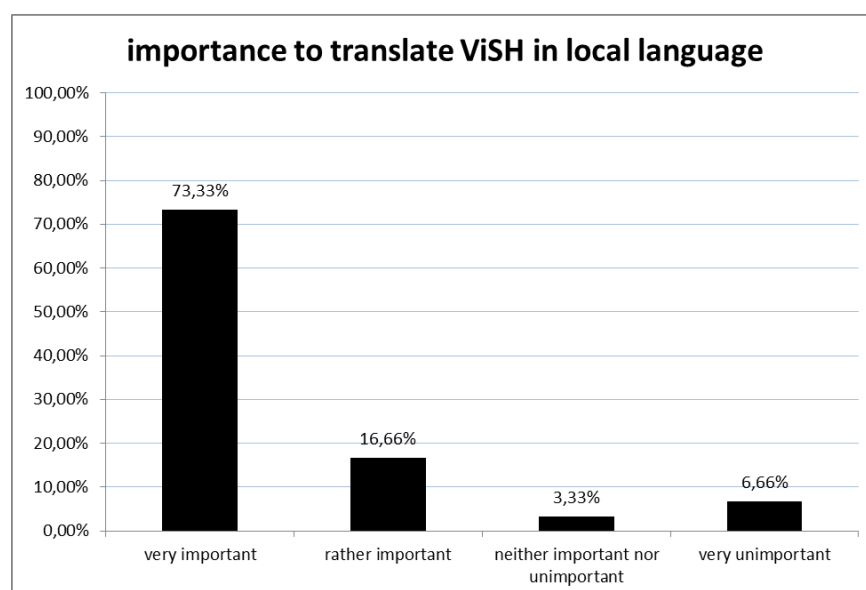
Table 19: importance to translate ViSH in local language (n=30)

The quantity of science content on ViSH is perceived from 46,66% of the teachers as *very good* or *rather good*. 33,33% said *neither good nor bad* and 19,99% think, that the quantity is *rather bad* or even *very bad* (Table 20).
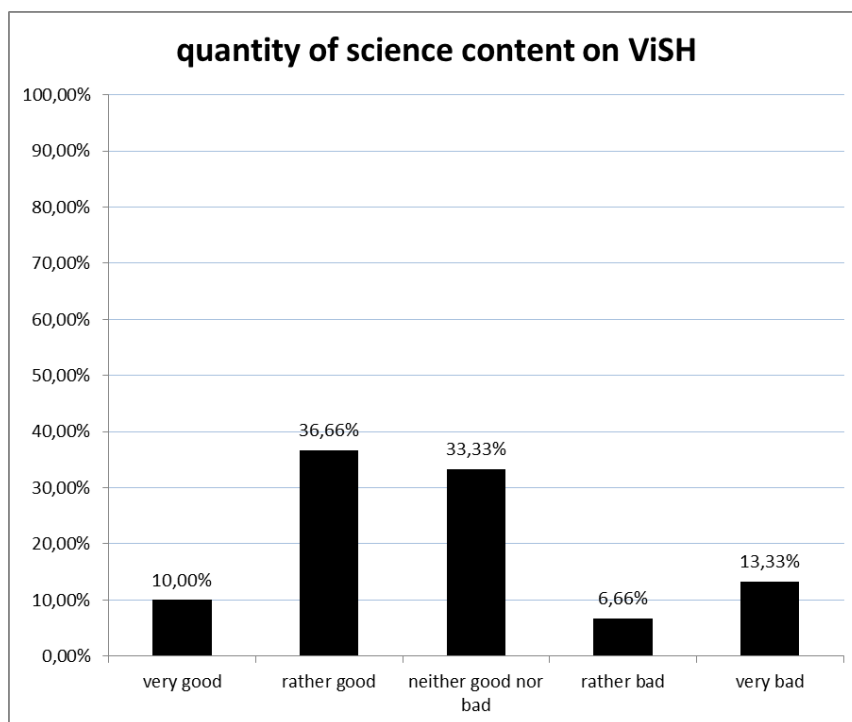
Table 20: quantity of science content on ViSH (n=30)

The quality of the science content is perceived as *very good* or *rather good* from 76,66% teachers. 20,00% said *neither good nor bad* and only 3,33% think, that the quality is *rather bad* (Table 21).
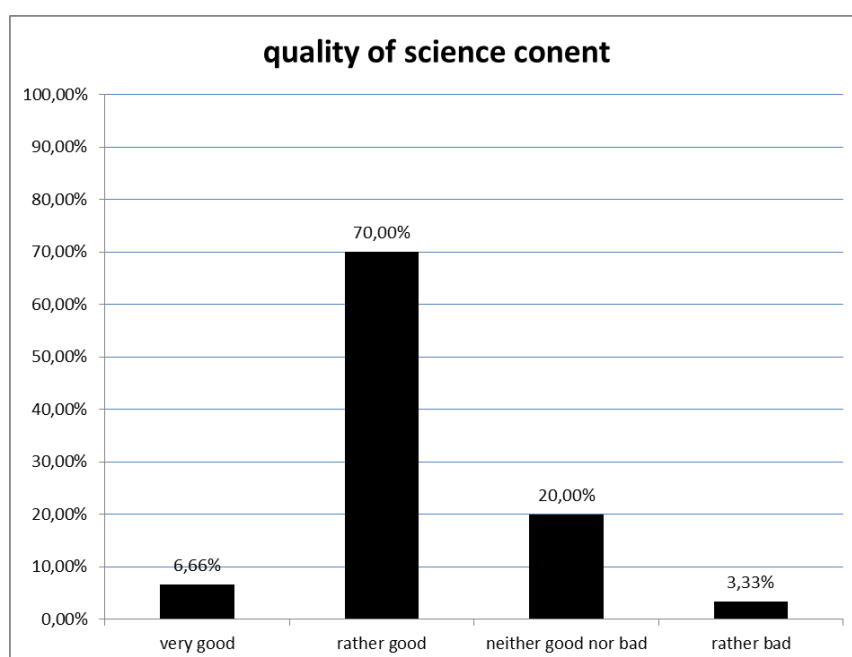
Table 21: quality of science content (n=30)

To summarise it can be said that the translation of the ViSH interface and science content is of high importance to the teachers. The quality of the offered content is perceived as good but the quantity should be increased. The technical equipment in respondents' schools is for half of them perceived as a barrier and for the other half not, which covers also the experiences we collected during the detailed discussions with the pedagogical advisors, that some schools are already very well equipped while other are not.

6.2.5 Future usage and relevance

In order to collect some additional information about the future usage of ViSH and MashMeTV, the teachers were asked how much they would like to use both tools if they would be freely available.

Looking at the figures of the following two tables (Table 22 and Table 23) the teachers are slightly more interested in using the ViSH than MashMeTV, with 46,66% of respondents saying that they would very much or rather much use the VISH, compared to 40,00% of respondents voting for MashMeTV. 43,33% gave a neutral statement for ViSH and 30,00% for MashMeTV. Clearly is the difference shown, when only 9,99% are saying, that they would rather little or very little or not at all use ViSH while MashMeTV got 29,99% votings.

This current preference for the ViSH is also reflected in the section about ViSH patterns (6.2.2 **ViSH patterns**) at the beginning of the questionnaire, where the teachers mainly stated that they use ViSH for excursions and resources. What has to be considered when reflecting on these outcomes is, that MashMeTV was used by teachers only a limited number of times during the "Meet the Scientists" sessions, where also some technical issues made the experience at the beginning more complex. In this light the high number of teachers who would be interested to use it in the future, is an interesting outcome. The fact that 2 teachers ranked the use of MashMeTV first and two ranked it second when asked which activities they undertook on the ViSH/MashMeTV support the future potential of MashMeTV.

Certainly MashMeTV is more difficult to be integrated into teachers' lessons plans, due to the "live"-character of the sessions. It requires advanced scheduling, detailed preparation, and specific equipment in the classroom – but once in place the potential is high.
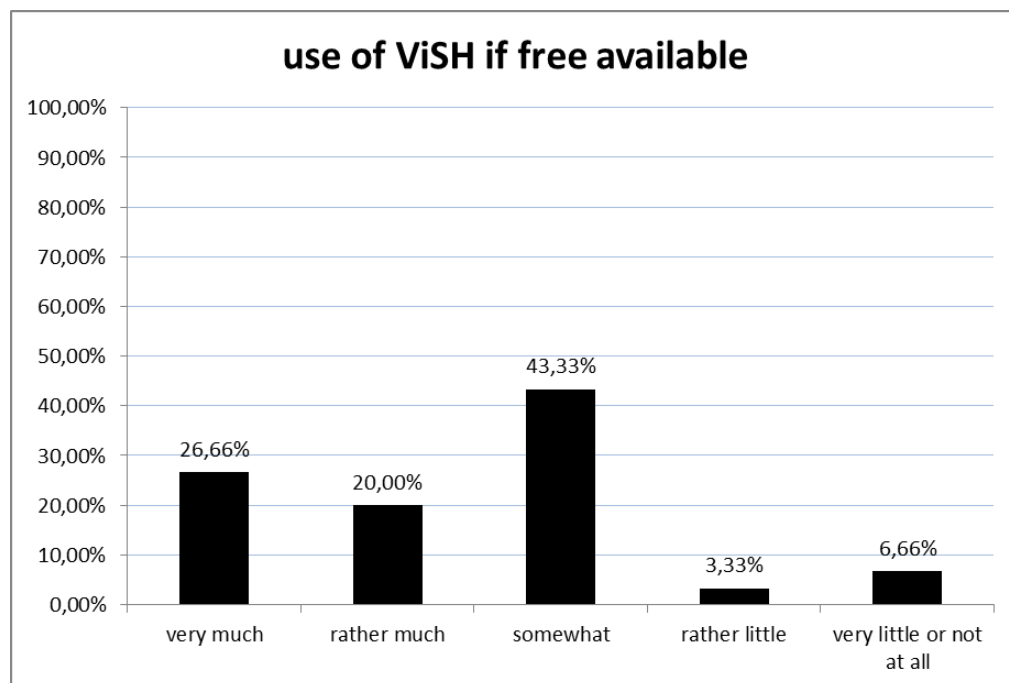
Table 22: use of ViSH if free available (n=30)
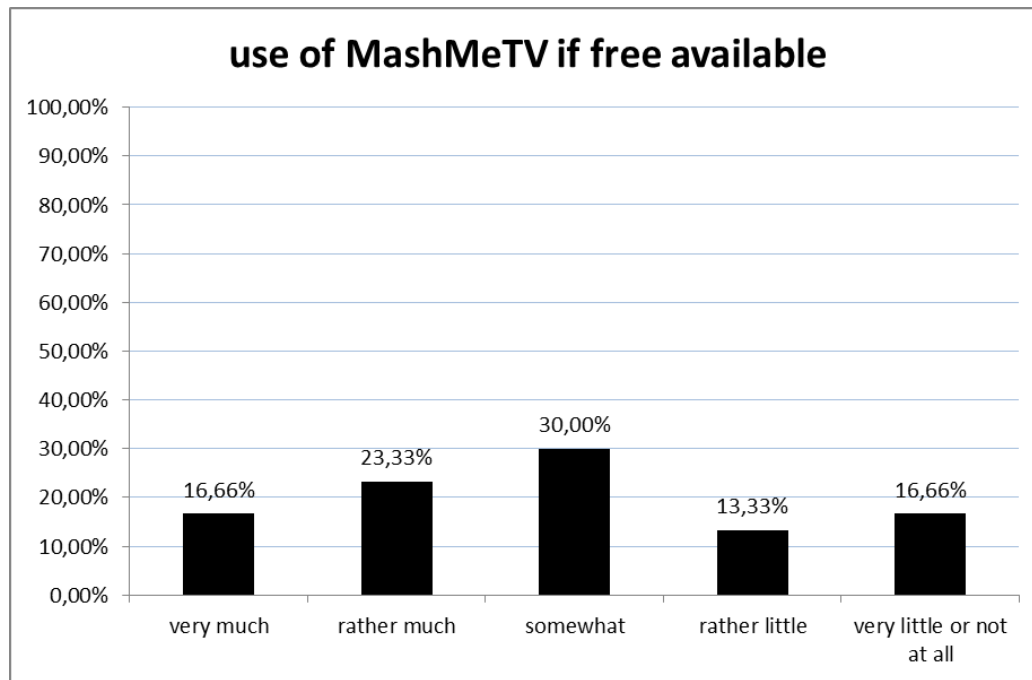
Table 23: use of MashMeTV if free available (n=30)

Asking the teachers, what kind of resources and excursions they will mainly use in future, 76,67% said that they are going to use own material as well as material prepared by others (Table 24).
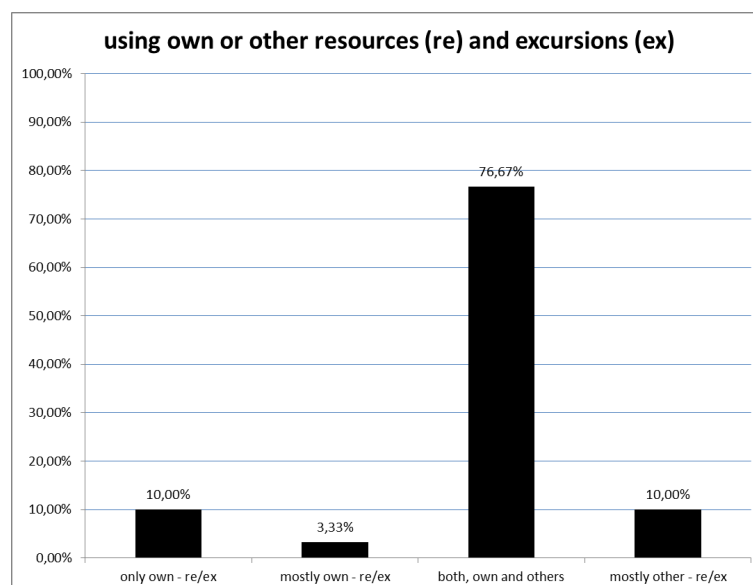
Table 24: using own or other resources (re) and excursions (ex) (n=30)

Assuming that the ViSH will be used in the next five years, most teachers think that it is mainly useful for specific projects (50,00%). For some of the respondents, ViSH is an easy tool to use, which could be supportive for the daily teaching practice by extending and enriching the existing teaching material in school. Besides, the ViSH could also be used in other LMS like Moodle by including excursions and resource from there. Some teachers are restricted to a very tight curriculum and have only 10-15% of their lessons left for presenting some different material, such as in the case of Hungary. However, some teachers believe that the ViSH will not be used unless the tool does not improve in future.

future usage of ViSH in the next five years
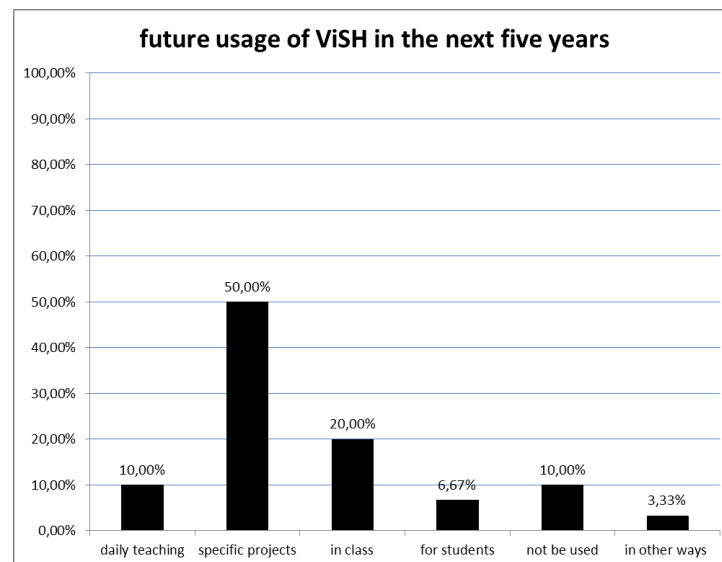
Table 25: future usage of ViSH in the next five years (n=30)

Summing up the two answer options "*strongly agree*" and "*agree*" the ViSH is compared with other known software

- Promising in terms of usefulness 53,33%

- Demands more technical knowledge 46,66%

- Time-consuming in preparation 43,33%

- Demands more team-work (working with other teachers and scientists) 50,00%

For more detailed information please take a look on the following tables (Table 26, Table 27, Table 28, Table 29) and the frequency tables in the Annex 10.3.

ViSH is promising (in terms of usefulness)
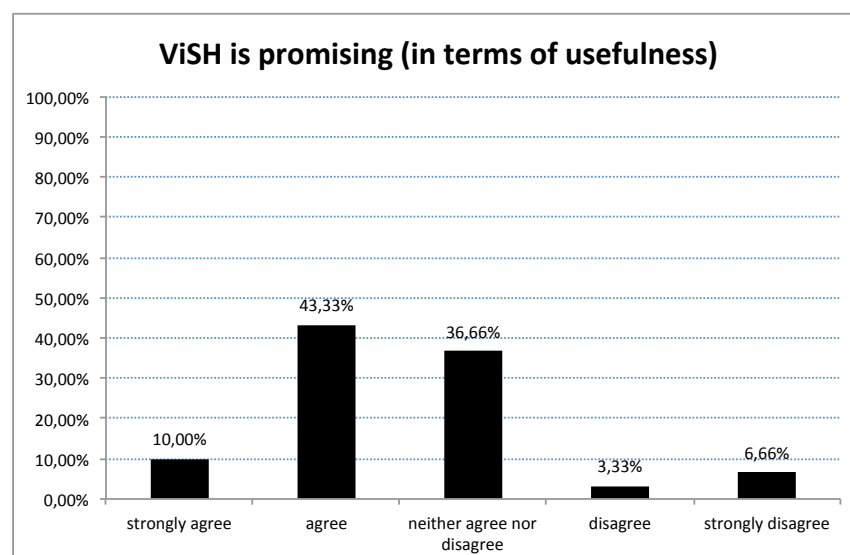
Table 26: ViSH is promising (in terms of usefulness, n=30)
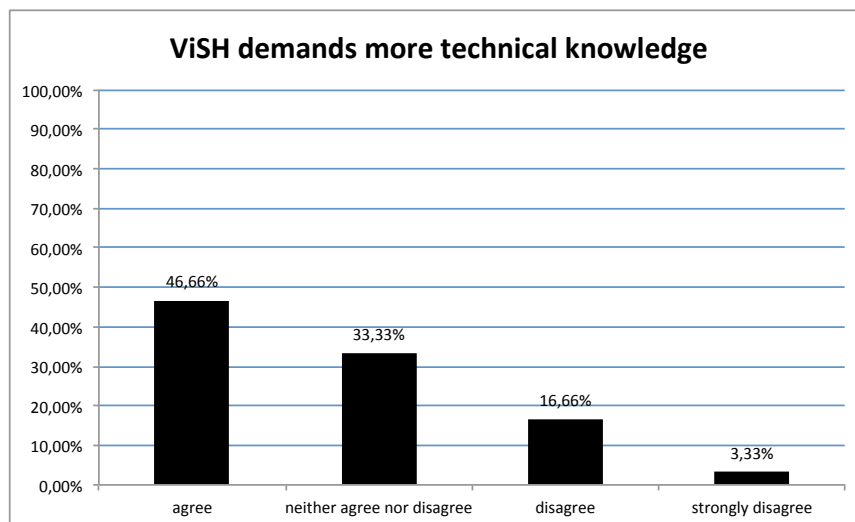
Table 27: ViSH demand more technical knowledge (n=30)
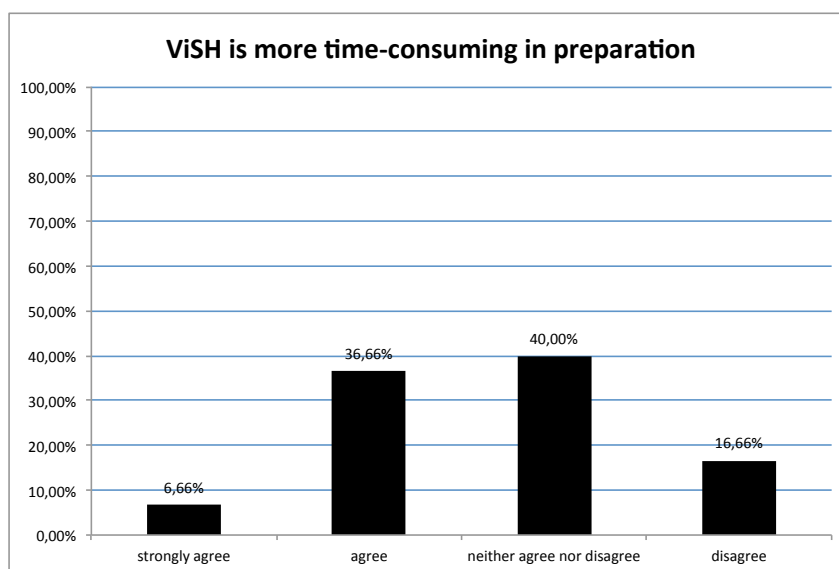
Table 28: ViSH is more time-consuming in preparation (n=30)

**ViSH demands more teamwork
(working with other teachers or scientists)**

strongly agree	6,66%
agree	43,33%
neither agree nor disagree	33,33%
disagree	10,00%
strongly disagree	6,66%
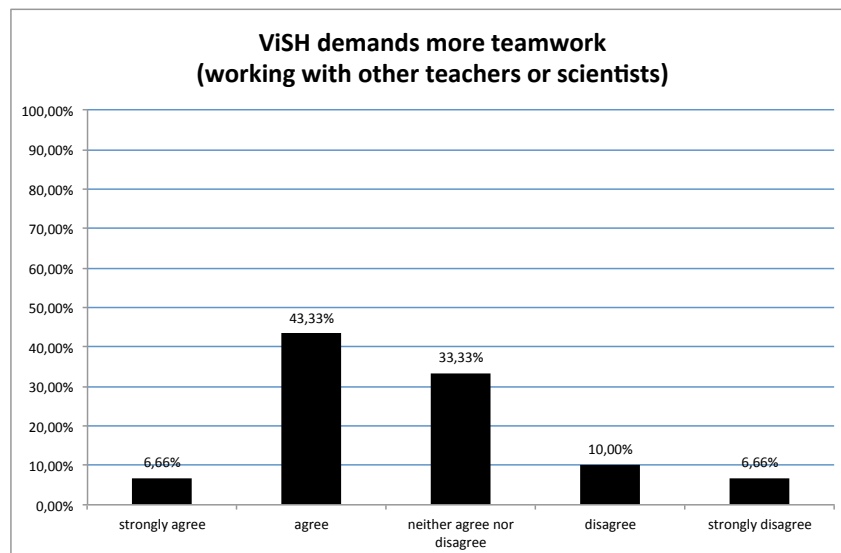
Table 29: ViSH demand more teamwork (working with other teachers or scientists, n=30)

Asking the teachers if they would like to recommend the ViSH to colleagues and friends, 86,67% said "*yes*", while the rest of them (13,33%) thinks "*no*".

recommending the ViSH to colleagues and friends...

yes	86,67%
no	13,33%
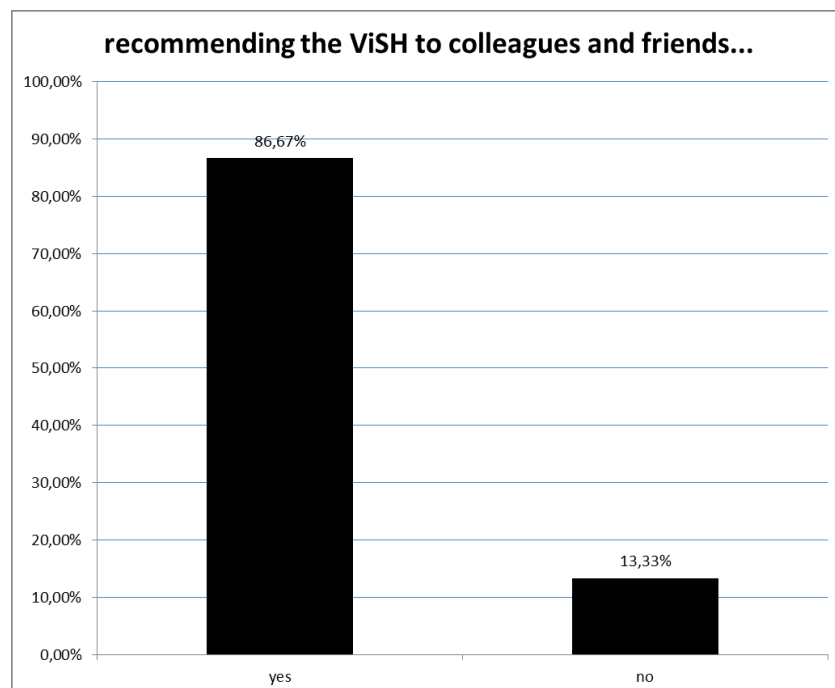
Table 30: recommending the ViSH to colleagues and friends (n=30)

Teachers with "*yes*" argued their choice as follows (statements are categorised or cited):

- "*ViSH has the potential to be a fantastic educational resource*"
- "*ViSH suits well to students*"
- Good resources and communication platform between teachers and scientists
- With more material there, the teachers could follow a course

- Looking at published excursions and creating own activities
- Having access to good teaching resources from other teachers
- Extension of own curriculum with real life activities
- Meeting scientists from different backgrounds

Teachers with "*no*" argued their choice as follows (statements are cited):

- "*There are better programs*"
- "*Tool is not working properly*"
- "*There are not enough materials*"

At the end of the questionnaire, the teachers had the possibility to leave some additional comments according to the additional value of ViSH or problems they perceive or any other issue they wanted to raise after using the ViSH. Looking into the comments, they are categorized as follows:

- TOO EARLY FOR FEEDBACK
    - Need more experience with ViSH in order to give recommendations
    - What is MashMeTV?
- TRAINING
    - A downloadable tutorial in Pdf-Format should be provided
        - Impossible to create an excursion on ViSH
        - Have to learn, how to upload resources
- ViSH - PRO
    - ViSH is useful in class
    - Liking the method and idea of ViSH
    - Working with this programme is enjoyable
    - Connections and communication with others is enjoyable within ViSH
- ViSH - CONTRA
    - The site and resources should be easily find in Google
    - Tool must be improved in general
    - The aim of ViSH is unclear
        - How many scientists are meant to join the project?
        - Which scientists are meant to join the project?
        - How many teachers are supposed to access the ViSH?
        - Should the ViSH be linked to the national curriculum?
    - "*Other Programs are more useful*"
    - "*I will provide my produced content on other/old ways like Moodle*"

- TEACHERS' and STUDENTS' NEEDS
  - There are already free tools in the Internet to make slide shows, so people who are in charge of this project should ensure that the provided resources on ViSH have a focus on education and the needs of their teachers and students.
- TEACHERS' PATTERN
  - Teachers' material exists in different repositories because of European and National projects, but the question is, who is using this material?
  - Some teachers are bored to create own material which is out-dated after some years due to new governmental law
  - Teachers like to use already existing material, which is well designed and useful for their daily teaching practice
- LANGUAGE
  - English is quite challenging for some of them
- CONTENT
  - Students have a normal curriculum, so the provided content should also be quite normal
  - Resources quickly out-dated because
    - Different changes in educational law
    - Curricula are changing
    - Different personal ways of teachers to teach
    - Nonstop change of technology
  - ViSH should provide expert knowledge to young people and show new e-infrastructures, but there is no evidence on ViSH yet. Where are the scientists, who provide their knowledge to the pupils
  - On ViSH is no scientific content, which could not be found in searching engines as well. What is the added value?
  - Google offers lot of teaching material like NASA resources for educators, which is already well organised
- ORGANIZATION of CONTENT
  - Resources and excursions should be organized by categories or subjects
  - Resources must be good organised
- TECHNICAL ASPECTS
  - In some schools, there is no internet-connection in each classroom which limits the usage of ViSH
  - Internet connection in some schools isn't good every time, therefore the excursion should be down able for the presentation in class
  - Vishub.org is on the win7-tab no usable since the rescaling in Chrome does not work

- o No replies to reported bugs since autumn 2012

- o Uploading of resources is possible, but to put them in an excursion does not work; a button is missing

- o Flashcards are useless tools, since each device could open presentations like Powerpoint, OpenOffice or Prezi

- o Quizzes are nice, but each learn-management-software like Moodle can do the same but the assessment is directly connected with the students

7 Conclusions and Outlook

As the detailed presentation of the survey results have shown, the ViSH has clearly some potential to be used in European schools in the future as a resource for interactive science teaching. However, important improvements have to be made and are currently under development for the next ViSH release. One of the issues e.g. that has been stressed is the language. Teachers consider it important to have the portal available in their national languages. Thus the consortium partners decided to translate the interface and make the ViSH available on different languages. Another aspect has been the interfacing with other learning content repositories in order to allow the integration of existing high quality content or the implementation of event management in order to stress the importance of live events and the mobile versions of the system.

A summary of the most important aspects that have become visible during the evaluation process so far and that will be tackled as much as possible during the remaining project runtime includes the following (Please note again that usability aspects are covered in a separate deliverable):

- **Social networks**: interaction in social networks on a platform like ViSH that is mainly designed for creating teaching content is expected to take place mainly amongst teachers. Teachers want to discuss with their peers regarding the content, rate it and adapt it to their needs and generally exchange their experiences. The interaction between scientists is concentrating on very specific demands that teachers want to express, such as organising live meetings for their students or allowing "hands-on" experiences with scientific research. This seems to be a different type of interaction, outside of the personal social network. Thus one might have to consider supporting different means of communication between the ViSH users.

- **MashMeTV and live events:** MashMeTV received quite positive feedback, although it was used only during a limited number of "Meet the scientists" sessions. Unfortunately some technical problems influenced the performance, which were partly due to the system but more often due to the Internet connection and technical equipment of the participants. Overall we see therefore high potential in the use of live events and have started with the development of event management functionalities on the ViSH. The mobile app of MashMeTV has received additional positive feedback from the scientists as it allows them to move around their labs and show e.g. their equipment during the educative session. Overall, we see great potential in the combination of mobile access and live events.

- **Content/Resources**: as results have shown, high quality, up-to-date and reusable resources are very important for teachers. This comes up as one of the most critical aspects from the collected feedback. High quality educational content is one of the main motivations to make of services such as offered by the ViSH. However, there are already quite a few existing, competing platforms that offer already high quality content and where teachers find adequate resources. Educational content repositories are developing fast and some portals are already quite established. The intention of the ViSH has never been to compete with these content repositories. Rather the ViSH will on the one hand provide interfaces to integrate external resources and concentrate on offering selective high quality content and special offers, such as the live events with the scientists and visits at the labs. The live

connections between science labs and schools still seem to be unique and may allow the ViSH to distinguish itself clearly from pure content repositories.

- **Language:** It has become clear during the process of working with educational stakeholders in different countries that language is an issue. On the one hand the ViSH interface should be provided in different languages. This is a task relatively easy to resolve and has already been taken up by the consortium. The language issue relates however also to content, where the solution might not be so easy. The developers have already started to think about options addressing the language barrier. Excursions can be cloned and translated and adapted locally, live events can be offered in different languages. In any case all content, be it resource or live events, can (and should) be tagged according to their language.

- **Guidance**: It seems that guidance on the use of the ViSH and its technical features, but also on the use of the different resources and its possible implementation in the curriculum is an issue. Partly this has been addressed during the specific training sessions operated in work package 4 and partly by a user manual. The users can also rate the pedagogical quality of the content and give comments and recommendations to others, but it seems that this feature has been used very little. This is something to explore further. The relatively low number of excursions may be one main reason for this and thus it should improve over time. Regarding the implementation in the curriculum we currently see the networking features and the social network amongst teachers following the same curriculum as the most appropriate way to give guidance and exchange experiences.

The outlook for the remaining project period in terms of evaluation activities that will be reflected in the final deliverables, especially on policy advice, includes the following activities:

Online feedback sessions will be run with the teachers. The questions will be very open, focusing on the teachers experience with the ViSH. The issues to be discussed will be grouped around the following topics:

- **Pedagogical experience**: how was the experience to use the ViSH in class and for which specific pedagogical scenarios was it most appropriate? Did you use the ViSH for any interdisciplinary teaching?

- **Technical experience**: was the ViSH functioning properly and how was the access to the ViSH? Where there any technical difficulties in accessing the ViSH?

- **Content on the ViSH**: Are the resources and excursions on the ViSH appealing?

- **Students' experience**: What was the feedback from the students? Did they like it? What did they prefer? What did they criticise?

- **Organisational aspects**: How was it to integrate the ViSH activities into the regular school curriculum?

In addition, we plan to involve two of the external advisers into a discussion regarding the updated and redesigned ViSH portal focusing on technical and pedagogical aspects respectively.

Scientists will be addressed to give feedback from the scientific institutions in the consortium as well as via specific networks such as the TERENA network and others.

Finally, continuous feedback is also collected in our dissemination and training events as well as via the integrated support and help desk that is available any time for the users to provide feedback.

8 Ethical issues

The project GLOBAL excursion is committed to respect any ethical issues during the data collection and processing phase.

During the data collection the data protection issues involved with handling of personal data has been addressed by the following strategies:

Volunteers that were enrolled have been exhaustively informed, so that they are able to autonomously decide whether they consent to participate or not. In an informed consent (see Annex 10.2), the purposes of the research, the procedures, potential discomforts or benefits as well as the handling of their data (protection, storage) have been explained. All participants have signed this consent form.

The data exploitation has been in line with the respective national data protection acts. Since data privacy is under threat when data are traced back to individuals – they may become identifiable and the data may be abused – we have anonymised all data.

The data gathered through logging, questionnaires, interviews and group discussions during this work package has been anonymised and therefore the data cannot be traced back to the individual. Data has been stored only in anonymous forms. Reports based on the interviews and group discussions have been based on aggregated information and comprise anonymous quotations respectively.

Concerning the data collected for this deliverable, the participants were all adults.

The feedback gathered during any of the presented evaluation activities has been treated anonymously and answers have not been assigned to persons individually. The questions regarding students experience have also been treated completely anonymously and no personal data about students has been collected at any point.

9 Bibliography

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10 Annexes

10.1 Online Questionnaire

GLOBAL Excursion Teacher Questionnaire

This questionnaire is part of the ViSH evaluation activities. With your input we would like to improve the ViSH and assess its potential as a support tool for science teaching. Your critical feedback is very valuable for us.
So please remember there is no right or wrong answer, we appreciate your honest opinion.

The data provided in this feedback is treated completely anonymously. It will be used only for project relevant reports and will not be provided to any third parties.

It should take you about 15 minutes to fill in the complete questionnaire. You can save your answers and come back at a later point in time, but we would recommend you to fill in the complete questionnaire at once, if possible.

Thanks in advance for answering the following questions!

The GLOBAL excursion consortium

There are 37 questions in this survey

A. About yourself:
 In the following questions we would like to gather some general information about you.

1.   In which country are you working?

2.   How often, on average, do you use computers in your teaching, other than connected to the ViSH? (Please chose only one of the following).

At least once a day
At least once a week
At least once a month
At least once a term (semester)
Less than once a term (semester) or never

3.   Have you taken part in other computer related projects at your school (previously or concurrently)?

Yes, in more than two other computer related projects
Yes, in two other computer related projects
Yes, in one other computer related project
No

4.   How would you rate your own technical background?

I have a very good background
I have a rather good background
I have some background
I have a rather limited background
I have a very limited background/I had to learn a lot about computer use generally

**5.	What kind of resources do you usually use in your teaching practice?**

Textbooks/Books
Images
Web pages
Videos
Audio files
Presentations
Other

**6.	What sources do you use to get resources that you use in your teaching practice?**

Official Book
Related books
Repositories from my center (school, high school, etc.)
Public online educational repositories
Private online educational repositories
Google
Video hosting services like Youtube, Vimeo, etc.
Image hosting services like Flickr, Picasa, etc.
Other

**7.	What tools do you use to create your teaching resources?**

I don't create resources
Word processor (e.g. Word, …)
Spreadsheet program (e.g. Excel,…)
Presentation program (e.g. Power Point, Keynote, …)
Image editing programs (e.g. Photoshop, Paint, …)
Online authoring tools (e.g. Prezi, …)
Other

B. VISH usage patterns

**8.	In which subjects do you use the ViSH and MashMeTV?**

Biology
Chemistry
Physics
Mathematics
Geography
Languages
Others

**9.	How do you use the ViSH? Please prioritize your answers. If you have selected the wrong item, just select it again from the right side of the window and re-start your selection from the left side.**

Please number each box in order of preference from 1 to 9.

I upload resources
I create excursions
I use existing excursions
I clone and adapt existing excursions
I create flashcards
I create quizzes

I use MashMeTV for live sessions
I connect and communicate with other teaches
I connect and communicate with scientists

10.   Which part of the ViSH do you like most?

Please write your answer here:

11.   Which part of the ViSH do you like least?

Please write your answer here:

C. Usability

12.   Please rate the following statements

strongly agree / agree / neither agree nor disagree / disagree / strongly disagree

Site load time is reasonable
It is difficult tom move around the ViSH
I can quickly find what I want on the ViSH
This website needs more introductory explanations
The ViSH is designed in an aesthetically appealing way
I can easily contact the people I want on the ViSH
The content on ViSH is displayed in a consisten manner
I learned to use it quickly
I find the content easy to read

13.   Do you use ViSH with your mobile device?

Yes
No

14.   Please rate the following statements regarding your mobile use of the ViSH:
(Only answer this question if previous answer was Yes)

strongly agree / agree / neither agree nor disagree / disagree / strongly disagree

The side is easy to navigate
It is easy to search for content on the website
The elements scale to fit the screen
The site is easy to read
The interaction with excursions is easy

15.   Are there any elements that you saw on the desktop version that you wish were incorporated into the mobile version?
(Only answer this question if answer to question 13 was Yes)

Please write your answer here:

16.   What kind of operating system are you using?
(Only answer this question if answer to question 13 was Yes)

iPhone
Android
Other

User experiences: Potential benefits

17.   How well do the working methods presented by the ViSH fit into the teaching culture you are accustomed to?

Very well
Rather well
Neither well nor badly
Rather badly
Very badly

18.   Did the resources and excursions on the ViSH fit with the curriculum you are expected to cover? (Please explain your rating)

Very good fit
Rather good fit
Neither good nor bad fit
Rather bad fit
Very bad fit

Make a comment on your choice here:

19.   How effective or ineffective do you find the ViSH to be in helping your students in reaching the learning goals according to the lesson plans? (Please explain your rating)

Very effective
Rather effective
Neither effective nor ineffective
Rather ineffective
Very ineffective

Make a comment on your choice here:

20.   How effective or ineffective do you find the ViSH to be in helping you creating teaching material that is exciting (stimulating, motivating) for your students? (Please explain your rating)

Very effective
Rather effective
Neither effective nor ineffective
Rather ineffective
Very ineffective

Make a comment on your choice here:

21.   How effective or ineffective do you find the ViSH to be in helping you creating teaching material that increases the students' interest in science? (Please explain your rating)

Very effective
Rather effective
Neither effective nor ineffective

Rather ineffective
Very ineffective

Make a comment on your choice here:

22.   How effective or ineffective do you find the ViSH to be in helping you create teaching material that makes your students better understand science? (Please explain your rating)

Very effective
Rather effective
Neither effective nor ineffective
Rather ineffective
Very ineffective

Make a comment on your choice here:

23.   How effective or ineffective do you find the ViSH to be in helping you creating teaching material that increases the students' critical capacity? (Please explain your rating)

Very effective
Rather effective
Neither effective nor ineffective
Rather ineffective
Very ineffective

Make a comment on your choice here:

24.   Did you get in contact with scientists on the ViSH?
Yes, a lot
Just a few contacts
No, I did not get in contact with scientists on the ViSH

25.   How important is the fact that you can get into contact with scientists on the ViSH for you as a teacher?

Very important
Rather important
Neither important nor unimportant
Rather unimportant
Very unimportant

26. Did you get in contact with other teachers on the ViSH?
Yes, a lot
Just a few contacts
No, I did not get in contact with teachers on the ViSH

27. How important is the fact that you can get into contact with other teachers on the ViSH for you?

Very important
Rather important

Neither important nor unimportant
Rather unimportant
Very unimportant

D. User experiences: Potential barriers

28. Is the status of the equipment in your school perceived as a barrier to the extended usage of the ViSH?

Very serious barrier
Quite some barrier
No great barrier
It is not a barrier at all

29.   How important or unimportant do you think it is for other teachers in your country to have the ViSH translated into your language, in order to make it widely used?

Very important
Rather important
Rather unimportant
Very unimportant

30. How good or bad do you think is the QUANTITY of science content which is provided on the ViSH? (Please explain your rating)

Very good
Rather good
Neither good nor bad
Rather bad
Very bad

Make a comment on your choice here:

31.   How good or bad do you think is the QUALITY of the science content which is provided on the ViSH? (Please explain your rating)

Very good
Rather good
Neither good nor bad
Rather bad
Very bad

Make a comment on your choice here:

E. Future usage and relevance

In the following questions we would like to gather some information about the future usage and relevance

34.   How much would you use the ViSH and MashMeTV, if it would be free available at your school?

VISH

Very Much
Rather much
Somewhat
Rather little
Very little or not at all

MashMeTV
Very Much
Rather much
Somewhat
Rather little
Very little or not at all

33.   In using ViSH, are you in the future planning to use your own resources and excursions or resources and excursions prepared by others?

I will use only my own resources and excursions
I will use mostly my own resources and excursions
I will use both, my own as well as resources and excursions prepared by others
I will use mostly resources and excursions prepared by others
I will use only resources and excursions prepared by others

34.   Assume in this question that the ViSH will be used in the next five years. How do you think that the ViSH will be used by most teachers?

In the day-to-day teaching environment
Mainly within specific projects
Mainly in class
Mainly for students to explore excursions on their own, e.g. at home
Not be used at all
It will be used primarily in other ways than mentioned above. Please tell us how:

35.   Do you agree or disagree with the following statements. Compared to other software you know of, the ViSH….

strongly agree / agree / neither agree nor disagree / disagree / strongly disagree

is more promising (in terms of usefulness)
demands more technical knowledge
is more time-consuming in preparation
demands more teamwork (working with other teachers or scientists)

36.   Would you recommend the ViSH to colleges and friends?

Yes
No

Please explain your choice:

37.   Is there any additional comment you would like to add, like additional added value that you can think of or problems and issues that you found while using ViSH. This is also the place for recommendations and opinions, feel free to add what you want:

Thank you for your participation in this survey!
The GLOBAL excursion team

10.2 Informed consent

GLOBAL excursion   informed consent

GLOBAL excursion
Extended Curriculum for Science Infrastructure Online

European Commission Seventh Framework Project
(Research Infrastructures Activity – Grant Agreement No. 283686)

Declaration of Consent

_____:name of participant

Barbara Kieslinger (kieslinger@zsi.at) ++43-6991 925 1508   :name of contact

Centre for Social Innovation, Vienna   :name of institution

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Executive Summary

Dr. Joana Namorado from the Directorate Health-DG RTD – European Commission, responsible for Ethics and Gender Issues, provides good guidance on informed consent (Namorado 2011, page 28). An informed consent has to answer and consider following questions:

- What is the research? Purpose, duration and description of project aims.
- foreseen risks and benefits, are there alternatives
- confidentiality, treatment/ compensation and information
- contact for rights and claims; injury to the subject
- voluntary participation or Condition of participation
- no penalty or loss on stopping

The following informed consent of Global excursion gives detailed answers to the above mentioned questions to make sure, that the rights of each participant is ensured.

1 Project aims

The project GLOBAL excursion (Extended Curriculum for Science Infrastructure Online) wants to provide pupils and their teachers access to a range of technologies used in science labs and to bring them in contact with expert users of such technologies, namely scientists. Based on the experience from previous projects, we intend to target pupils between 14-18 years of age (upper stage school). Science communicators, teachers and educational experts will elaborate engaging communication and teaching activities in which pupils can explore scientific topics and phenomena in new and exciting ways.

The main purpose of the GLOBAL excursion project is to offer teachers and their pupils' access to the experimental laboratories and resources of selected scientific experiments in order to enrich science curricula by expanding school's existing teaching and learning materials. By connecting e-Infrastructures, resources and tools with schools, pupils can experience challenging and authentic learning scenarios. Thus, students gain insights in scientific realwork, they can even contribute to it and relive interest in natural science education.

The involved scientific disciplines are nano- and biotechnologies, as well as volunteer computing and life sciences and shall thus be mainly included in classes covering natural sciences, such as physics and biology, as well as information technologies. The access should be provided via one main entry point, the Virtual Science Hub (ViSH). Apart from connecting to the different scientific resources and experiments, the ViSH will also offer communication, collaboration and networking facilities for teachers and students. Our vision is that teachers create a community of practice where they exchange their experience in science teaching and especially with the infrastructure and resources provided via the ViSH.

2 Storage of personal data

During the course of the project, personal data will be collected a number of times by means of observation and interviews. This data is used to develop and to evaluate Global excursion's technology according to the needs of the target group (that is: you!).

The data will be used only within the project framework of Global excursion, and will not be made accessible for any third party. It will not be stored after the end of the project.

The data do not contain the names or addresses of participants and will be edited for full anonymity before being processed (e.g. in project reports).

3 Audiovisual material

Videos and photographs taken during the course of the project may contain the pictures of participants. Global excursion may use these videos and photographs in public forums, on websites or in conferences in order to inform about the project. Each participant allows the project Global excursion to use the said materials

Each participant may demand removal of photographs or videos from public forums and websites by simple request. Subject to technical feasibility, Global excursion agrees to remove the requested items without delay.

4 Instructions and advice

An identified contact person will be available for project-related instructions and advice. Each participant may gladly discuss questions and problems with the contact person at any time.

5 Condition of participation

Each participant will have a Teachers' contract with European Schoolnet (EUN) defining his/her tasks, days to be spent on the project throughout its timeline and the foreseen remuneration. Teachers will commit to fulfil their tasks and attend the foreseen project meetings.

The participation is voluntary, consent can be refused, and withdrawal is possible at any time.

6 Code of Conduct

Participation in Global excursion is meant to be as agreeable and pleasant as possible for all those involved. Therefore, all participants agree to respect the following rules:

- Racism and discrimination: racist comments, discrimination on the basis of sex, age, or disability, publication of racist or sexist pictures and insulting persons with a migration background or disability are strictly banned.
- Global excursion may not be abused for political, religious or advertising purposes.
- Infringements of copyright laws are not permitted.

- It is only allowed to publish one's own texts and pictures. Publishing pictures from the account of another person is not permitted without this person's consent.

All participants' conduct towards other users should always be appropriate and never offensive or depreciating.

7 Consent

After having stated these general conditions and rules, we are looking forward to a good cooperation and positive project results. We would like to thank you in advance for your participation in the project Global excursion.

The undersigned declare that they understand and consent to the conditions and rules of Global excursion.

Both parties receive a copy of this declaration of consent.

Participant's signature:

Vienna, December 2011

Contact's signature:

Vienna, December 2011   Barbara Kieslinger, Centre for Social Innovation

8 Bibliography

Powerpoint Presentation from Dr. Joana Namorado, Ethics, Gender Issues Directorate Health-DG RTD – European Commission at the Austrian National Contact Point FFG: http://rp7.ffg.at/upload/medialibrary/Namorado_Ethics.pdf (September 2011, page 28).

10.3 Statistical tables

About yourself – Users' profile

Participating countries

participating countries			
	Countries	**Frequency**	**Percent**
	Austria	5	9,1%
	Belgium	5	9,1%
	Bulgaria	1	1,8%
	Czech Republic	1	1,8%
	England	6	10,9%
	France	1	1,8%
	Germany	2	3,6%
	Hungary	5	9,1%
	Israel	1	1,8%
	Italy	5	9,1%
	Portugal	3	5,5%
	Romania	3	5,5%
	Russian	1	1,8%
	Slovakia	1	1,8%
	Spain	12	21,8%
	Turkey	1	1,8%
	USA	2	3,6%
TOTAL		**55**	**100%**

Use of computers for teaching, other than connected to the ViSH

use of computers for teaching				
		Frequency	Percent	Cumulative Percent
	once a day	31	63,27%	63,27%
	once a week	11	22,45%	85,71%
	once a month	3	6,12%	91,84%
	once a term	1	2,04%	93,88%
	less than one a term	3	6,12%	100,00%
TOTAL		**49**	**100%**	

Take part in other computer related projects at your school

taking part in computer related projects		Frequency	Percent	Cumulative Percent
	Yes, in more than two other computer related projects	23	46,94%	46,94%
	Yes, in two other computer related projects	6	12,24%	59,18%
	Yes, in one other computer related project	11	22,45%	81,63%
	No	9	18,37%	100,00%
TOTAL		**49**	**100%**	

Own technical background

own technical background		Frequency	Percent	Cumulative Percent
	very good	18	36,73%	36,73%
	rather good	17	34,69%	71,43%
	some background	12	24,49%	95,92%
	rather limited	2	4,08%	100,00%
TOTAL		**49**	**100%**	

Used resources for teaching (multiple choice)

used resources for teaching		Frequency	Percent
	Texts/Books	46	93,88%
	Videos	44	89,80%
	Images	44	89,80%
	Presentations	41	83,67%
	Web pages	38	77,55%
	Audio files	15	30,61%
	Other resources	13	26,53%
TOTAL		**49**	

Used sources for organising resources (multiple choice)

sources for organising resources		Frequency	Percent
	Google	42	85,71%
	Video hostig services like YouTube, Vimeo	42	85,71%
	Official books	39	79,59%
	Public online educational repositories	35	71,43%
	Related books	29	59,18%
	Image hosting services like Flickr, Picasa	20	40,82%
	Repositories from own center	18	36,73%
	Private online educational repositories	10	20,41%
	Other sources	6	12,24%
TOTAL		49	

Used tools for creating teaching resources (multiple choice)

tools for creating teaching resources		Frequency	Percent
	Presentation programs like Power Point and Keynote	47	95,92%
	Word processor like Word	45	91,84%
	Image editing programs like Photoshop and Paint	31	63,27%
	Online authoring tools like Prezi	28	57,14%
	Spreadsheet program like Excel	27	55,10%
TOTAL		49	

ViSH usage patterns

In which subjects do you use ViSH and MashMeTV?

ViSH and MashMeTV used in following subjects		Frequency	Percent
	Other	22	52,38%
	Physics	19	45,24%
	Biology	18	42,86%
	Chemistry	14	33,33%
	Geography	7	16,67%
	Languages	7	16,67%
	Mathematics	4	9,52%
TOTAL		42	

Table for Ranking 1:

		Frequency	Percent
Rank 1 - use of ViSH			
	I upload resources	10	35,71%
	I create excursions	2	7,14%
	I use existing excursions	11	39,29%
	I clone and adapt existing excursions	2	7,14%
	I create quizzes	1	3,57%
	I use MashMeTV for live sessions	2	7,14%
TOTAL		28	100%

Table for Ranking 2:

		Frequency	Percent
Rank 2 - use of ViSH			
	I upload resources	1	4,00%
	I create excursions	4	16,00%
	I use existing excursions	5	20,00%
	I clone and adapt existing excursions	4	16,00%
	I create flashcards	1	4,00%
	I create quizzes	2	8,00%
	I use MashMeTV for live sessions	2	8,00%
	I connect and communicate with other teachers	5	20,00%
	I connect and communicate with scientists	1	4,00%
TOTAL		25	100%

Table for Ranking 3:

		Frequency	Percent
Rank 3 - use of ViSH			
	I upload resources	2	8,33%
	I create excursions	5	20,83%
	I use existing excursions	2	8,33%
	I clone and adapt existing excursions	5	20,83%
	I create quizzes	4	16,67%
	I use MashMeTV for live sessions	1	4,17%
	I connect and communicate with other teachers	3	12,50%
	I connect and communicate with scientists	2	8,33%
TOTAL		24	100%

Table for Ranking 4:

		Frequency	Percent
Rank 4 - use of ViSH			
	I upload resources	2	10,00%
	I create excursions	4	20,00%
	I use existing excursions	1	5,00%
	I clone and adapt existing excursions	3	15,00%
	I create flashcards	2	10,00%
	I create quizzes	1	5,00%
	I use MashMeTV for live sessions	3	15,00%
	I connect and communicate with other teachers	3	15,00%
	I connect and communicate with scientists	1	5,00%
TOTAL		**20**	**100%**

Table for Ranking 5:

		Frequency	Percent
Rank 5 - use of ViSH			
	I create excursions	1	6,67%
	I use existing excursions	1	6,67%
	I create flashcards	4	26,67%
	I create quizzes	4	26,67%
	I use MashMeTV for live sessions	3	20,00%
	I connect and communicate with scientists	2	13,33%
TOTAL		**15**	**100%**

Table for Ranking 6:

		Frequency	Percent
Rank 6 - use of ViSH			
	I upload resources	3	27,27%
	I clone and adapt existing excursions	2	18,18%
	I create flashcards	2	18,18%
	I create quizzes	2	18,18%
	I connect and communicate with other teachers	1	9,09%
	I connect and communicate with scientists	1	9,09%
TOTAL		**11**	**100%**

Table for Ranking 7:

		Frequency	Percent
	Rank 7 - use of ViSH		
	I use existing excursions	2	18,18%
	I create quizzes	1	9,09%
	I use MashMeTV for live sessions	2	18,18%
	I connect and communicate with other teachers	3	27,27%
	I connect and communicate with scientists	3	27,27%
TOTAL		**11**	**100%**

Table for Ranking 8:

		Frequency	Percent
	Rank 8 - use of ViSH		
	I create excursions	1	10,00%
	I use existing excursions	2	20,00%
	I clone and adapt existing excursions	1	10,00%
	I use MashMeTV for live sessions	1	10,00%
	I connect and communicate with other teachers	3	30,00%
	I connect and communicate with scientists	2	20,00%
TOTAL		**10**	**100%**

Table for Ranking 9:

		Frequency	Percent
	Rank 9 - use of ViSH		
	I upload resources	1	11,11%
	I create excursions	1	11,11%
	I clone and adapt existing excursions	1	11,11%
	I create flashcards	3	33,33%
	I use MashMeTV for live sessions	1	11,11%
	I connect and communicate with other teachers	1	11,11%
	I connect and communicate with scientists	1	11,11%
TOTAL		**9**	**100**

User experiences: Potential benefits

How well do the working methods presented by the ViSH fit into the teaching culture you are accustomed to?

working method fit into teaching culture		Frequency	Percent	Cumulative Percent
	very well	3	9,68%	9,68%
	rather well	16	51,61%	61,29%
	neither well nor badly	6	19,35%	80,65%
	rather badly	4	12,90%	93,55%
	very badly	2	6,45%	100,00%
TOTAL		**31**	**100%**	

Did the resources and excursions on the ViSH fit with the curriculum you are expected to cover?

ViSH fit with the curriculum		Frequency	Percent	Cumulative Percent
	Rather good fit	12	38,71%	38,71%
	Neither good nor bad fit	10	32,26%	70,97%
	Rather bad fit	7	22,58%	93,55%
	Very bad fit	2	6,45%	100,00%
TOTAL		**31**	**100%**	

How effective or ineffective do you find the ViSH to be in helping your students in reaching the learning goals according to the lessons plans?

reaching_learning_goals		Frequency	Percent	Cumulative Percent
	very effective	8	19,51%	19,51%
	rather effective	18	43,90%	63,41%
	neither effective nor ineffective	9	21,95%	85,37%
	rather ineffective	4	9,76%	95,12%
	very ineffective	2	4,88%	100,00%
TOTAL		**41**	**100%**	

How effective or ineffective do you find the ViSH to be in helping you creating teaching material that is exciting (stimulating, motivating) for your students?

creating exciting content for students with ViSH		Frequency	Percent	Cumulative Percent
	very effective	3	10,00%	10,00%
	rather effective	19	63,33%	73,33%
	neither effective nor ineffective	4	13,33%	86,67%
	rather ineffective	2	6,67%	93,33%
	very ineffective	2	6,67%	100,00%
TOTAL		30	100%	

How effective or ineffective do you find the ViSH to be in helping you creating teaching material that increases the students' interest in science?

increases students' interests		Frequency	Percent	Cumulative Percent
	very effective	12	30,77%	30,77%
	rather effective	15	38,46%	69,23%
	neither effective nor ineffective	9	23,08%	92,31%
	rather ineffective	1	2,56%	94,87%
	very ineffective	2	5,13%	100,00%
TOTAL		39	100%	

How effective or ineffective do you find the ViSH to be in helping you creating teaching material that makes your students better understand science?

makes students better understand science		Frequency	Percent	Cumulative Percent
	very effective	5	16,67%	16,67%
	rather effective	15	50,00%	66,67%
	neither effective nor ineffective	6	20,00%	86,67%
	rather ineffective	2	6,67%	93,33%
	very ineffective	2	6,67%	100,00%
TOTAL		30	100%	

How effective or ineffective do you find the ViSH to be in helping you creating teaching material that increases the students' critical capacity?

increases students critical capacity		Frequency	Percent	Cumulative Percent
	very effective	1	3,33%	3,33%
	rather effective	10	33,33%	36,67%
	neither effective nor ineffective	17	56,67%	93,33%
	rather ineffective	1	3,33%	96,67%
	very ineffective	1	3,33%	100,00%
TOTAL		30	100%	

Nonparametric Correlations between the questions (SPSS-Output):

"*How effective or ineffective do you find the ViSH to be in helping your students in reaching the learning goals according to the lessons plans?*"

and

"*How effective or ineffective do you find the ViSH to be in helping you creating teaching material that increases the students' interest in science?*".

Nonparametric Correlations

[DataSet1] P:

Correlations			reaching_ learning_ goals_NEW	increases students interests_ NEW
Spearman's rho	reaching_learning_ goals_NEW	Correlation Coefficient	1,000	,577**
		Sig. (2-tailed)	.	,000
		N	41	39
	increases students interests_NEW	Correlation Coefficient	,577**	1,000
		Sig. (2-tailed)	,000	.
		N	39	39
**. Correlation is significant at the 0.01 level (2-tailed).				

Did you get in contact with scientists on the ViSH?

established contacts with scientists		Frequency	Percent	Cumulative Percent
	Just a few contacts	8	26,66%	26,66%
	No, I did not get in contact with scientists on the ViSH	22	73,33%	100%
TOTAL		**30**	**100%**	

How important is the fact that you can get into contact with scientists on the ViSH for you as a teacher?

important to get into contact with scientists on the ViSH		Frequency	Valid Percent	Cumulative Percent
	very important	8	26,66%	26,66%
	rather important	12	40%	66,66%
	neither important nor unimportant	9	30%	96,66%
	rather unimportant	1	3,33%	100%
TOTAL		**30**	**100%**	

Did you get in contact with other teachers on the ViSH?

established contacts with teachers		Frequency	Percent	Cumulative Percent
	Yes, a lot	6	20%	20%
	Just a few contacts	16	53,33%	73,33%
	No, I did not get in contact with teachers on the ViSH	8	26,66%	100%
TOTAL		**30**	**100%**	

How important is the fact that you can get into contact with other teachers on the ViSH for you?

important to get into contact with teachers on the ViSH		Frequency	Valid Percent	Cumulative Percent
	very important	13	43,33%	43,33%
	rather important	12	40,00%	83,33%
	neither important nor unimportant	4	13,33%	96,66%
	rather unimportant	1	3,33%	100%
TOTAL		**30**	**100%**	

User experiences: Potential barriers

Is the status of the technical equipment in your school perceived as a barrier to the extended usage of ViSH?

technical equipment in school is a barrier		Frequency	Valid Percent	Cumulative Percent
	very serious barrier	9	30,00%	30,00%
	quite some barrier	6	20,00%	50,00%
	no great barrier	9	30,00%	80,00%
	it is not a barrier at all	6	20,00%	100,00%
TOTAL		**30**	**100%**	

How important or unimportant do you think it is for other teachers in your country to have the ViSH translated into your language, in order to make it widely used?

importance to translate ViSH in local language		Frequency	Valid Percent	Cumulative Percent
	very important	22	73,33%	73,33%
	rather important	5	16,66%	90,00%
	neither important nor unimportant	1	3,33%	93,33%
	very unimportant	2	6,66%	100%
TOTAL		**30**	**100%**	

How good or bad do you think is the QUANTITY of science content which is provided on the ViSH?

quantity of science content		Frequency	Valid Percent	Cumulative Percent
	very good	3	10,00%	10,00%
	rather good	11	36,66%	46,66%
	neither good nor bad	10	33,33%	80,00%
	rather bad	2	6,66%	86,66%
	very bad	4	13,33%	100,00%
TOTAL		**30**	**100%**	

How good or bad do you think is the QUALITY of science content which is provided on the ViSH

quality of science content		Frequency	Valid Percent	Cumulative Percent
	very good	2	6,66%	6,66%
	rather good	21	70,00%	76,66%
	neither good nor bad	6	20,00%	96,66%
	rather bad	1	3,33%	100%
TOTAL		**30**	**100%**	

Future usage and relevance

How much would you use the ViSH and MashMeTV, if it would be freely available at your school?

use of ViSH if free available		Frequency	Valid Percent	Cumulative Percent
	very much	8	26,66%	26,66%
	rather much	6	20,00%	46,66%
	somewhat	13	43,33%	90,00%
	rather little	1	3,33%	93,33%
	very little or not at all	2	6,66%	100%
TOTAL		30	100%	

use of MashMeTV if free available		Frequency	Valid Percent	Cumulative Percent
	very much	5	16,66%	16,66%
	rather much	7	23,33%	40,00%
	somewhat	9	30,00%	70,00%
	rather little	4	13,33%	83,33%
	very little or not at all	5	16,66%	100%
TOTAL		30	100%	

In using ViSH, are you in the future planning to use your own resources and excursions or resources and excursions prepared by others?

using own or other resources and excursions on ViSH		Frequency	Valid Percent	Cumulative Percent
	I will use only my own resources and excursions	3	10,00%	10,00%
	I will use mostly my own resources and excursions	1	3,33%	13,33%
	I will use both, my own as well as resources and excursions prepared by others	23	76,67%	90,00%
	I will use mostly resources and excursions prepared by others	3	10,00%	100,00%
TOTAL		30	100,00%	

Assume in this question that the ViSH will be used in the next five years. How do you think that the ViSH will be used by most teachers?

future usage of ViSH in the next five years		Frequency	Valid Percent	Cumulative Percent
	In the day-to-day teaching environment	3	10,00%	10,00%
	Mainly within specific projects	15	50,00%	60,00%
	Mainly in class	6	20,00%	80,00%
	Mainly for students to explore excursions on their own, e.g. at home	2	6,67%	86,67%
	Not be used at all	3	10,00%	96,67%
	It will be used primarily in other ways than mentioned above. Please tell us how?	1	3,33%	100,00%
TOTAL		30	100,00%	

Compared to other software you know of, the ViSH ...

ViSH is promising (in terms of usefulness)		Frequency	Valid Percent	Cumulative Percent
	strongly agree	3	10,00%	10,00%
	agree	13	43,33%	53,33%
	neither agree nor disagree	11	36,66%	90,00%
	disagree	1	3,33%	93,33%
	strongly disagree	2	6,66%	100%
TOTAL		30	100%	

ViSH demands more technical knowledge		Frequency	Valid Percent	Cumulative Percent
	agree	14	46,66%	46,66%
	neither agree nor disagree	10	33,33%	80,00%
	disagree	5	16,66%	96,66%
	strongly disagree	1	3,33%	100%
TOTAL		30	100%	

ViSH is more time-consuming in preparation		Frequency	Valid Percent	Cumulative Percent
	strongly agree	2	6,66%	6,66%
	agree	11	36,66%	43,33%
	neither agree nor disagree	12	40,00%	83,33%
	disagree	5	16,66%	100%
TOTAL		30	100%	

ViSH demands more teamwork (working with other teachers or scientists)		Frequency	Valid Percent	Cumulative Percent
	strongly agree	2	6,66%	6,66%
	agree	13	43,33%	50,00%
	neither agree nor disagree	10	33,33%	83,33%
	disagree	3	10,00%	93,33%
	strongly disagree	2	6,66%	100,00%
TOTAL		30	100%	

Would you recommend the ViSH to colleagues and friends?

recommending the ViSH to colleagues and friends		Frequency	Valid Percent	Cumulative Percent
	Yes	26	86,67%	86,67%
	No	4	13,33%	100,00%
TOTAL		30	100,00%	