



MAS

Museum Affinity Spaces

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Deliverable D28

Specifications for the MAS user communities support

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Museum Affinity Spaces (MAS): Re-imagining Museum-School Partnerships for the 21st century through a Multiliteracies Lens

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Specifications for the MAS user communities support Deliverable 28

Executive summary

This document is a deliverable meant to define technical specifications for the MAS Portal and community building systems in terms of satisfying different user groups' needs and providing easy access to the projects' tools and materials as appropriate. The deliverable is aimed primarily at the project's technical team and national coordinators, so that their work will be guided by the results and experiences already gained by the partners both with the activities carried out so far in MAS and by the analysis of research documents from the field.

The report develops along two main topics, in particular the first half of the document focuses on the target groups of the project and their needs, while the second half focuses on recommendations, ideas and tools to ensure that those needs are met through the portal and materials provided.

Strong synergies exist between the work carried out in WP6, also in preparation for this deliverable, and WP3, WP7 and WP9. These will be pointed out in the appropriate places within the text.

Concerning the ongoing Participatory Activities and the planning phase of the new cycles of workshops, work is ongoing with the national partners to enrich the planning of the new cycle of activities so that they will better fit the needs and expectations of the target groups. In order to advance in the work and take into account the work previously carried out while soliciting higher level and more in-depth feedback, it was decided to open a discussion with the practitioners in the field, in this case the national coordinators in the project, and co-create an updated version of the Participatory Activity Planning. In this perspective, it was deemed redundant to produce a new version of the D-6.1, where these activities are described. Instead, a working model will be elaborated in the month following the delivery of this document and this will be used as a guideline for the second cycle of Participatory Workshops in the second project year. In the same way, a flexible approach will be favored in order to ensure that new information is being gained in each cycle of workshops, and better formats are being used to elicit this information.

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1. INTRODUCTION

The target groups and the main stakeholders involved in the MAS project, have been identified and described in the relevant working package (D17). In this document, we seek a more practical approach related to the use of the MAS Infrastructure. As soon as the potential users are part of the community, the materials and the tools developed, must support the use and contribution of the different groups of potential users, so that they can easily find their way through the interface and locate resources of interest (MAS Cabinet, MAS Portal, MAS Archive, Support Hub), based on their needs and profiles. The overall design of the structure of the MAS interface, is such that will enable the user to quickly navigate through the platform and perform different tasks.

Towards this end, the focus of this report is on museum educators and school teachers, who will be the main users of the MAS Platform and the educational support systems within it. They are also the ones to introduce the MAS Platform to students, the other target group in the project. School teachers' and museum educators' needs have been addressed through variant methods that have proven meaningful to start the work of designing the MAS Infrastructure. What is of essence in the first place, is to ensure accessibility, usability, and the necessary support mechanism to assist users in contributing materials, using resources and tools, collaborating and sharing practice and experiences. The previous are instrumental to the optimum success of the MAS project and its added value to promote a Europe-wide interaction in designing an online system for educational purposes.

WP6 (Community building) concentrates on developing a community of stakeholders, who will promote the project from its early beginning, guiding practice through the participatory, design-based research followed, and lead to project results that are sustainable. The main categories of the user communities that are identified are:

- ✚ School Communities (Teachers, Learners, Schools' Administration, Teacher Trainers);
- ✚ Students (Who Will Participate Mostly Through Their Facilitators);
- ✚ Museum Communities (Executive Board, Education Programmes Manager, Museum Staff, Museum Educators);
- ✚ University Communities, And
- ✚ Policy Makers Involved In Education And Research.

These communities are broad together in MAS, through a range of activities. Firstly, **online participatory engagement activities** were organised (e.g., online surveys aiming to summarise stakeholders' vision of how to integrate MAS Cabinet in school practice (targeting all stakeholder groups), how the MAS Portal and scaffolds should be designed (teacher survey), and how to integrate external virtual museums into the MAS infrastructure and make it sustainable (online surveys aiming to summarise stakeholders's views).

Secondly, WP6 conducts different **series of workshops** supporting the MAS community (Visionary Workshops (M3 – M8), and Practice Reflection Workshops (M10 – M24). The intention of these workshops is to prepare the implementation of the project through helping the target users understand the MAS philosophy and approach, as well as gather their feedback on the project development and evaluation of the results, to inform the next iterative cycles and final assessment phase.

While these workshops take place, the intention is to implement the project in different European schools. The first group of pilot schools and museums (97 institutions), is identified within the first six months of the project (after Visionary Workshops are completed) and informs the first cycle of pilots (M8 – M12). The first group of museums and schools also participate in the first cycle of Practice Reflection Workshops (M10-12).

As it is described in Deliverable 17 (D17), the engagement of schools and museums as pilot sites in the project proceeds as soon as official permission is gained from the relevant European Ministries of Education in the participating countries. Political stakeholders are also addressed in WP2 (Dissemination activities), WP6 (Community building) and WP7 (Validation and evaluation), in order to support the mainstreaming of MAS around Europe and make it sustainable beyond the project's lifecycle.

The provision in WP2 and WP6, is to create a live international network of museums and schools, with exchanges and collaborations within affinity spaces in the premises of the MAS Infrastructure. Finally, WP6 establishes an **educators' support mechanism**, involving techniques for motivating educators with real world learning activities and professional development schedule, to support them during the implementation of the MAS Pedagogical Framework in the classroom or/and museum.

The aforementioned are possible through the design of the MAS online Infrastructure, addressing all MAS stakeholders and providing target group specific information. This infrastructure includes the project's website, social media channels, a quarterly newsletter, and forums and blogs the project contributes to. Certain events are also provisioned to take place during the span of the project. Stakeholders and MAS community members addressed in WP2 and WP6, who would like to maintain contact with the project and future progress, are welcome to join MAS social media groups and receive project newsletters. WP6 therefore intends to establish an effective communication framework towards internal and external project stakeholders, raising awareness of the project's results and attracting potential users.

Concurrently, it is pursued to maintain offline communication channels as well. WP2 involves participation and distribution of MAS progress and development in international and national scientific conferences, targeting educators and researchers by publishing papers, posters, workshops and round tables, and presenting the

project to a broad public. Amongst the different deliverables of the project, are a variety of hardcopy dissemination materials and giveaways to promote the project.

Further, WP2 and WP6 include the provision to establish **contacts to other research projects** and institutions in order to create mutual benefits by using intermediate results for enhanced developments. Finally, in order to extend the MAS visibility and sustainability and to make the Infrastructure available to various educational institutions (primarily schools, but also universities and training institutions), WP6 addresses **organisational stakeholders**, who might be interested in extending their pedagogical and technical framework providing and getting access to the MAS Infrastructure, offering and receiving tutoring and support services, as well as enriching existing educational programs.

2 .THE EDUCATORS' COMMUNITY

School teachers who want to implement the MAS Pedagogical Framework alongside their current teaching methods, are a critical target group in the MAS project. For this reason, the first phase of the design-based research with the preliminary analysis to depict needs, challenges and recommendations from this user group and from partners and closely related to teachers organisations, was fundamental to the project. The full breadth of the preliminary analysis has been already explained in Deliverable 18 (D18).

Bringing teachers together and informing them about the project goals and objectives, forms the first step to creating the community of users that will sustain MAS and enrich it with content. The next section details the measures to be implemented in support of the teachers' use of the tools provided by MAS.

2.1 Intrinsic and external challenges school-teachers face in using the MAS Platform

It is widely acknowledged that integrating digital technologies into the education process provides new opportunities for creative learning, for strengthening innovative teaching and for improving students' learning outcomes. (EURODICE DIGITAL EDUCATION, 2019). However, for digital technologies to have such a positive impact, it is necessary to deal with different challenges, including the competencies required to teach with ICT and the positive attitudes to effect the necessary changes (Conrads et al., 2017, p. 15).

However, the digital infrastructure available in each of the European member states differs. Digital education is not at the same page for every country, and this relates closely to the economic background or its stage of digital development (EURODICE, 2019). It is therefore interesting to consider the Digital Economy and Society Index (DESI), a composite indicator

that summarises relevant indicators on Europe's digital performance. According to this index (DESI, 2019), Finland, Sweden, the Netherlands and Denmark, followed by the United Kingdom, Luxembourg, Ireland, Estonia and Belgium have the most advanced digital economies among the EU member states. Conversely, Bulgaria, Romania, Greece, and Poland score lowest (EURODICE, 2019, p.89).

The 2nd Survey of Schools on ICT in Education (European Commission, 2019) also gives some empirical insight into the availability of IT infrastructure in schools. The survey shows that on average, across Europe, the higher the education level, the more schools are highly digitally equipped and connected: 35 % of schools in primary education, 52 % in lower secondary education and 72 % in upper secondary education. Furthermore, students in Nordic countries are more likely to attend schools which are highly digitally equipped and connected (European Commission, 2019, p. 39).

However, the survey also shows that students' access to desktop computers in school is more likely to be in computer laboratories rather than in classrooms (European Commission, 2019, pp. 30-31). It is also evident that the use of online and virtual environments such as virtual museums, by teachers and students in their everyday practice is lagging, due to many barriers. Supporting teachers to create modern classrooms and promote ubiquitous learning, is a complex task (OECD, 2019).

Whilst policy reform is essential to address the evolving reality of our world, education systems, are not particularly successful in this front (OECD, 2019): despite teachers take part in professional development, they identify high needs in certain areas, particularly teaching students with special needs and using ICT skills for teaching. It is important to consider national curricula, standards and guidelines for teaching, before any design for professional development takes place. Most importantly, it is crucial to integrate knowledge and skills to protect and foster the emotional well-being and digital literacy of students (Burns & Gottschalk, 2019).

Figure 1 shows the responses of countries to the 21st Century Children Policy Questionnaire in terms of the topics included in teacher education programmes, either initial or continuous professional development.

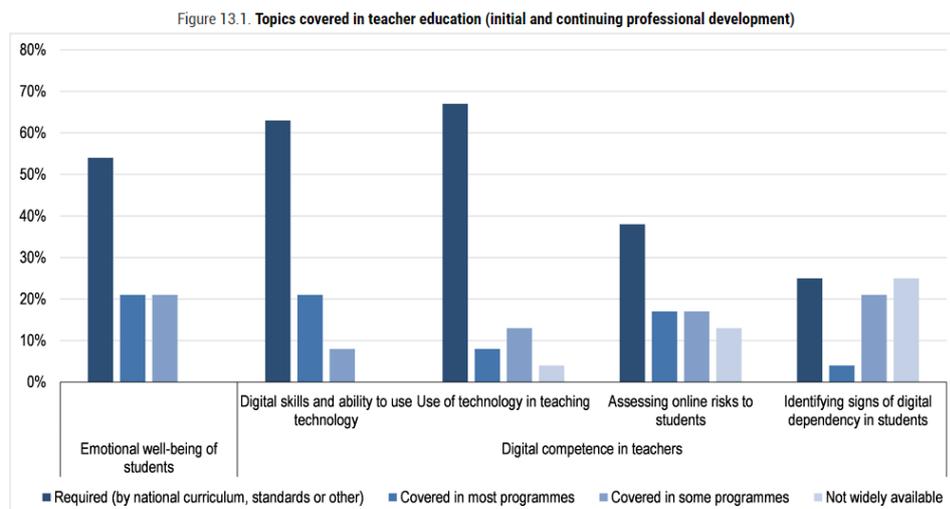


Figure 1. Topic covered in teaching education (initial and continuing professional development)¹

According to OECD (2019), countries generally support teachers' efforts to acquire digital skills and use technology, however it is often the case that the majority of countries do not implement digital competencies in initial teacher development programmes. In this case, it is difficult for teachers to keep up with all technological advances and engage in training in-service. There is an evident gap between the importance attributed to the role of teachers in teaching students with ICT, and the actual practice and policy making (OECD, 2019, p43.) The support educators receive is overall significantly less, compared to the attention paid in theory. Similarly, the disconnect between educating students to develop responsible online behaviour and managing the risks of digital technologies, illustrates some of the challenges around the integration of technology in schools. One important issue is that preparing students to live in a digital (ised) society involves interdisciplinary skills and student behaviour both inside and outside of school. This makes establishing clear and coherent standards for practice much more difficult. (OECD, 2019, p43.)

Teachers' own perceptions of the usefulness of digital technologies in the educational process also confirm that the right skills and positive attitudes are crucial, if these technologies are to be effective (Eurydice, 2019). According to the 2nd Survey of Schools (European Commission, 2019, p. 48) looking at the benchmark 'progress in ICT in education', alongside 'equipment-related factors', it is clear that teachers see the lack of appropriate skills and pedagogical models for using ICT in the learning process as important obstacles. The survey also reveals that teachers need to be motivated and convinced that there is a clear benefit to be had from using ICT for teaching. They must also receive pedagogical and technical support in order to be confident in employing digital technologies in their daily practice.

¹ Note: Responses indicate the proportion of systems that confirmed the topics were covered in existing teacher education in their systems. 24 countries and systems responded to this question.

Source: 21st Century Children Policy Questionnaire, Burns & Gottschalk, 2019).

It becomes evident that to engage teachers in the use of new tools and systems is a highly challenging task. Teachers' stance towards investing in new technology-enhanced instructional tools is often puzzling, as they believe it is time-consuming, or because they feel they lack the necessary ICT skills. The lack of digital infrastructure in schools of some countries, is also a big disadvantage in terms of integration of ICTs in their everyday routine, as well as the time-restrictions posed by the national curriculum where existent. To ensure that the connection between MAS content and school curricula is as continuous and seamless as possible, much work has been carried out and is reported in D13-15.

Diving deeper into the issue of virtual museums in schools, it appears that the most common organisational barriers include:

- the lack of financial support and lack of correspondence between curriculum and the use of virtual museums
- lack of time and motivation from the teachers and lack of systematic training schemes

Certain technical barriers and challenges relate to availability of computer-equipped classrooms and high speed internet connection, availability of technical support and training, user friendly interface and integrated learning environment, etc.

Nevertheless, this new era for education deriving from evolving technologies, requires for teachers to update their practices and deliver in terms of digital competences, for themselves and their students. To address this issue, a number of interesting measures have been developed, as identified by OECD (OECD, 2019): These can be broadly grouped into three main approaches:

- curriculum reforms and extension
- formal teacher education and training
- network approaches to teaching and learning.

The MAS adopts a network approach to teaching and learning, which relates to curriculum reform and extension. In addition, by using technology-enhanced learning tools, it allows the teachers to better tailor the lesson to students' interests and everyday life, a core design principle in the MAS Pedagogical Framework. The use of the MAS Platform and in particular the virtual museum developed (MAS Cabinet), will bring students closer to the outside world and familiarise them with a museum environment and its components, while the tasks students uptake, will resemble those of real museum staff, such as curators, etc. Some students might be drawn thus much to the museum, that will decide to pursue careers in the museum world or cultural and creative industries. The use of virtual museums in the framework of teaching in class, could also contribute to increased collaboration amongst students, and allow them to strengthen their social competences and communication skills.



This is particularly relevant to students coming from different cultural and linguistic backgrounds. Being part of a group, boosts their confidence and possibly helps them open up to their peers.

In conclusion, despite a general tendency to be reluctant over the use of new teaching methods and employing new teaching tools, school-teachers across Europe and the world are realising the need to be flexible in their approaches and keep updating their practices to allow the integration of ICT tools and new technologies. For this to happen smoothly and effectively, teachers require substantial support, both by experts and colleagues in their local teaching communities. To foster this, the MAS team prefers a 'pull' rather than a 'push' approach when it comes to supporting teachers in deploying the MAS tools. Steps taken include to organise a strong teachers' community that will motivate teachers to participate, to provide examples from real-life classroom examples of implementation using the MAS tools, which in turn help them release their own professional imagination and become active practitioners and contributors.

The preliminary context analysis provided insights into the intrinsic and external challenges school-teachers face in using virtual museums. A critical element to build a concrete support mechanism for teachers in the MAS community, involves to allow for constructive and reflective dialogue to take place.

In particular, the compilation of the results of the visionary and participatory design workshops confirm the international literature which is documented in a comprehensive white paper identifying intrinsic and external barriers, which is included in D27 "Future Challenges Report".

In Table 1, are described the most commonly perceived barriers according to the teachers participating in the preliminary context analysis of the MAS project. The teachers also report the corresponding needs which should be addressed, in order to be effective:

Table 1. Barriers, challenges and needs for users in MAS

Barriers and challenges	Needs to be addressed
<ul style="list-style-type: none">• Proper training on ICT tools in general and on the use of the MAS tools.- Teachers are not sufficiently trained in using virtual museums and often they do not feel confident enough to even begin using them.	<ul style="list-style-type: none">• Increase of collaboration between teachers.- Allow the collaboration in making a learning plan.- Allow the sharing of work with other users.

- | | |
|---|---|
| <ul style="list-style-type: none"> - Some kind of direct short help (e.g., tooltips) needs to be offered explaining all functionality. - MAS Infrastructure should also offer elaborate help in addition to easily accessible help. • Most teachers have the preconception that virtual museums will be too complex to use and/or too difficult to be implemented in an average classroom. • Online, virtual or/and remote, museums usually have no structuring and scaffolding to support the inquiry process. • Existing virtual museums differ in interface and usage, which makes them less usable in the classroom. • Existing virtual museums are not organized by domain and so teachers cannot integrate more virtual museums into their lessons over a longer period of time. • It is often unclear where virtual museums fit into everyday teaching curricula. • A significant number of school-teachers is not aware of virtual museums and hence cannot benefit from their usage. <ul style="list-style-type: none"> - There is no support for teachers from existing virtual museum owners/developers. | <ul style="list-style-type: none"> • Provide concrete scenarios of use that can be carried out within 1 or 2 at the most didactical hours. • Provide examples of use on how to implement an activity in class using the MAS tools. • Easy-to-use search engine for partner institutions and a user-friendly interface. - Design of the MAS portal needs to be visually appealing to the students and teachers (e.g., by using colours and pictures). • Access to a repository of complete ready-to-use learning plans. • Assistance by experts in the making of new activities. |
|---|---|

- | | |
|--|--|
| <ul style="list-style-type: none"> • Computer and network connection infrastructure in schools may not be sufficient for use of virtual museums by all students in the classroom. | |
|--|--|

The aforementioned list of needs that need to be addressed, results from the teacher participants in the workshops for the preliminary context analysis and focus on ways to be dealt with through the teachers' community support environment. More specifications have also been recorded which relate to the design of the actual MAS platform and the pedagogical approach adopted. More details are presented in the deliverable D18 "Preliminary MAS requirements specifications, needs analysis and creative options."

The MAS project can provide support for school-teachers and enable them to overcome challenges, especially through:

- the series of training and professional development actions and activities for in-service and pre-service teachers
- The production and circulation of online and printed support materials in various languages , including pedagogical learning scenarios to link the use of virtual museums with the curriculum in different levels and countries (practical guidelines, user's manual for the MAS Cabinet, examples of best practice and learning activities)
- The technical barriers listed above have been addressed by the project within the design of the MAS integrated environment, including the usability problems, online lab search and personalization of content. It is pursued that the users' interface offered to teachers, will be by design intuitive, simple and easy to use, with access to ample support on basic and also more complex tasks.
- General organisational barriers can be reduced or promote policy changes through appropriate and intensive dissemination activities targeted at educational authorities and policy makers in the participating countries.

Even for the barriers that seem to remain out of scope of the MAS project, such as the lack of time, insufficient funding and school support, these can also be addressed with indirect or direct project dissemination activities and communication actions, such as open letters or publications to high impact journals. Such activities will increase the awareness of political and public bodies and educational authorities about the MAS approach and the need to support its implementation.

The teachers' community support mechanism stems from the MAS Support Hub, a forum for dialogue between the MAS users both on technological and on pedagogical issues. Different initiatives will be undertaken so as to inspire teachers to participate in the MAS pilot phases, as well as to ensure their proper training on the tools and their professional development.

The MAS community is founded on the principles of **a) trust, b) ownership c) thematic distinction.**

Before anything else, it is crucial to gain a level of rapport with the school-teachers and earn their trust. Our team should ensure that the service provided is tailored to their needs and that it will contribute substantially in the upgrading of their teaching practices.

Secondly, teachers need to make sure that the work and the effort they put in is recognised and that their work is promoted as their own. The MAS Platform allows for the creation of both individual and institutional profiles, and users can easily upload and promote their work, while also give credits where due. The tools developed are easy to use and simple to navigate through.

Lastly, it is common knowledge that when it comes to building communities, participants prefer the thematic area of the community to be focused. In the premises of the MAS Project, this is especially important, as affinity spaces theory suggests that individuals come together based on common interest/s. In the following paragraphs, we present the approach that the MAS team plans to adopt in order to build an effective teachers' community support mechanism, following the three principles mentioned above. These measures will provide guidance on all aspects of MAS, opportunities to participate in training activities and initiatives that aim to further engage teachers in the MAS activities.

2.2 Motivating and supporting educators in deploying the MAS services

2.2.1 Demonstrations of the MAS services

The MAS services are promoted as part of a presentation of the project in different venues, such as a conference or a workshop. Specific attention is paid to this first impression and demonstrate not only the highlights of MAS, but also the fact that the MAS services are fully supported. This creates the kind of safety and trust required for educators (museum educators and school-teachers) to uptake this new technology and develop a positive stance towards it. In this respect, we promote a hands-on demo experience where possible, with teachers being able to test the tools developed themselves and navigate through the platform during a short activity.

In the current version of the MAS Infrastructure, it is possible to scroll through the different services and explore what the Platform has to offer. To gain full access though, the users must create a profile, through a simple process of registration. The demo interactive activity in the MAS Cabinet is designed to be short and be part of a presentation (around 30 minutes), motivate teachers and help them grasp a concrete idea of the project. It is best if the demo activity chosen focuses on a subject

that is among the most popular throughout different grade levels, and could make the most use of the MAS Cabinet. It is also important to present the additional tools that educators and students will have at their disposal, such as the templates that are foreseen for the MAS

Cabinet. To achieve that, sample concept maps and experimentation plans can be prepared (like the Placemat²), so as to present the set of scaffolds provided by the environment.

Another element of success for increasing participation of educators, is to follow a top-down method, in essence by contacting stakeholders and local school advisors to organise events such as workshops. Having this type of stakeholders and working alongside them, increases potentially the number of teachers attending the event and the possible impact it may have on them.

2.2.2 Promotion of good practices and success stories

It is often the case with new teaching methods and especially technology-supported tools, that educators feel there is no real benefit for students, and one way to counterattack this position, is with concrete examples in the form of good practices. A good example is to follow the footsteps of a teacher as he goes from initial contact with the MAS Platform, using the MAS Cabinet, implementing it with the students and closing with presenting the outcomes of his/her work. Teachers who become mentors for others and share their success path, are a welcoming addition and can positively influence their peers. The educators may present the outcomes of his/her work in a national or an international conference and thus promote it even further. Such practicing educators could become change agents, and inspire their colleagues in following their example. Thus, including an example of good practice in the presentation of the project, is a good way to present the possibilities offered to teachers. Good practices can be presented at the MAS Archive and the MAS Support Hub, which are the resources section and forum respectively. Success stories can be presented through the social media pages of the project and other forums and blogs to attract more participants

2.2.3 Online courses

Online courses are an effective way to reach a greater number of teacher participants, especially in schools from rural areas. The MAS Platforms allows to create webinars and even courses by the users themselves. These online courses could be a set of 3 or 4 classes, each of which focus on a different subject. An example structure could be the following:

Module 1:

Brief introduction to the MAS project and virtual museums.

² The 'placemat' is a concept introduced by Cope and Kalantzis (2000), designed as an initial pen-and-paper drafting space for sorting ideas for student activities into the Knowledge Processes. This is an optional step – you may instead decide to move directly into documentation within the online Learning Module environment.

Introduction of the MAS Pedagogical Framework approach, the Multiliteracies Assessment Schema and the Learning Scenarios that can be deployed when working with students.

Presentation of example learning plans from the MAS Archive repository.

Homework: The participants will be asked to prepare a learning plan, based on the MAS knowledge processes (in the form of a simple document).

Module 2:

Familiarisation with the MAS Archive repository, the tools and the services provided.

Demonstration on how to install and develop a dedicated version of the MAS Cabinet.

Hands-on practice with creating a profile at the MAS Portal and searching for partners.

Discussion on the learning plans created by the online attendees.

Homework: The participants will be asked to turn the learning plan they had prepared as homework, into their version of the MAS Cabinet.

Module 3:

Working on the MAS Cabinet prepared by the participants, answering questions on the use of the tools.

Discussion on the deployment of the MAS Cabinet in the classroom.

Homework: The participants will be asked to finalise the version of the MAS Cabinet they have been working on.

After completing the course, the participants will receive comments from the tutors and they will have extra time to finalise their work. Once the course is completed and the participants have delivered their version of the MAS Cabinet, they will be provided with a certificate of participation and digital badge will be added to their online profile. Aside from reaching teachers that have no prior familiarisation with MAS, all the teachers participating in the pilot phases, will also be invited to attend these online courses should they need extra help in using the MAS tools and services.

2.2.4 Final conference day

There are plans to organise a one day Conference, which will be held in Cyprus. This conference will have an emphasis on delivery and disseminating the Handbook created for describing the results of the project (in two languages). It is proposed that the conference follows the following format, to enable support for teachers to further pursue or try the MAS approach.

- c) Presentation of multiliteracies-based learning activities for use in the classroom
- d) Familiarisation with virtual museum portals and educational digital repositories.
- e) Presentation of popular social tools and museum and outreach websites.
- f) Hands-on sessions working on the MAS Cabinet and resources related to virtual museums and multiliteracies pedagogy.

We intend to assure that educators wishing to implement the MAS approach, will undertake active, guided experimentation, carried out at both basic and top-level scientific facilities. The conference will also strengthen its social cohesive and pan-European dimension, by inviting participants to be part of the MAS community, which will allow them to exchange ideas and materials with fellow teachers across Europe and introduce them to social tagging, educational metadata and on-line learning repositories.

The repertoire of virtual museums and museum environments at large, and the social tools that were presented in combination with the hands-on activities facilitated the participants in learning how to deploy the vast collection of existing eLearning tools and educational resources and also how to integrate their own work into educational repositories and share it within a European community of practice.

The program of the conference can span across 4 main branches:

- a) Workshops
- b) Plenary Sessions
- c) Extra Activities
- d) Participants' presentations and reflection.

3. THE EDUCATIONAL PROVIDERS' COMMUNITY

Local stakeholders who own virtual museums, such as universities, museums, galleries and other cultural institutions, should be contacted and be directly involved in the project. They will be motivated to provide access to their virtual environments, by creating profile via the MAS Portal. While WP6 activities will be mainly responsible for collecting the interest of these users and contributors to the online instruments, it will also focus on providing them with appropriate tools to foster and sustain their interest, once they join the communities. The motivation for inclusion of their institutions in the MAS Portal, would be to gain visibility and extend their network of collaborations beyond the physical and virtual spaces of their institutions.

Organisations that provide educational resources, such as universities and training institutions, might also be interested in including museum multiliteracies learning activities in their educational programs. For example, they could use the MAS Platform to gain access to the MAS Cabinet. These organisations can turn providers of further pedagogical learning scenarios and resources for the MAS Archive.

4. OTHER STAKEHOLDERS' COMMUNITIES

There are different groups of stakeholders involved in MAS. Policy makers and network connecting organisations that are actively pursuing research and practice in topics relevant to the project, are among the target communities to reach, especially to ensure a strong impact of the project in the last stages of dissemination. We do not proceed to be explicit in details on how to promote the MAS project for such stakeholders, as it is perceived that these groups will not actively explore the tools and resources in detail or contribute materials themselves. However, they are important and we must ensure they gain easy access to an overview of the resources and the activities, so that they are properly informed without spending too much time.

4.1 Students' direct engagement with the virtual museum (MAS Cabinet)

The MAS Infrastructure is to be used by students and lifelong learners in their learning activities inside and out of the classroom environment. The main idea of the MAS project is to provide students the possibility to use the MAS Cabinet being guided by the teacher, for example, during a school class. However, the MAS Platform can be interesting also for the students who want to deepen their knowledge in particular areas in addition to their school program. Lifelong learners might also be interested in using the MAS Platform in their self-regulated learning activities or in conjunction with Massive Open Online Courses (MOOCs).



4.2 Learning Designers and communication professionals

Another target group in this project is *scientific researchers* and *learning designers* who may want to use the MAS approach and technical infrastructure to extend (online) learning programs they create using virtual environments. Methodological outcomes of the MAS project may also be used by the researchers in parallel and follow-up projects. Although, there are no specific trainings offered by the project for these stakeholders, they may get support using the MAS Portal, as well as supporting materials in the MAS Archive section.

5. OPERATIONAL SPECIFICATIONS AND TOOLS

5.1 Synopsis of support services and target groups

Table 2 provides an overview of the different tools and mechanisms that will be implemented in the project to create communities and foster stakeholders' active engagement and participation in the communities.

Table 2. MAS Services

Item name	Target Group
Online manual	Educators (museum educators and school-teachers)
Online video	Educators (museum educators and school-teachers)
Online manual	Students, Lifelong Learners
Online video	Students, Lifelong Learners
Online manual	Researchers and

	learning designers
Online video	Researchers and learning designers
Online manual	Learning and cultural institutions
Online video	Learning and cultural institutions
Training sessions courses	Educators (museum educators and school-teachers)
Training sessions courses	Students, Lifelong Learners
Training sessions courses	Researchers and learning designers
Training sessions courses	Learning and cultural institutions
Offline support	All

5.2 Online support for educators

There is a need to develop manuals that will support educators in their endeavours during the project. Although the intention is to make the platform as accessible and easy as possible, it is evident there will be a need to develop detailed manuals for the use of the MAS Cabinet and MAS Portal. The manuals will be available online through the MAS Archive so that everyone may have access to them. In order to be successful in supporting the teachers even more effectively, a brief tutorial in the form of a video may also be created, which will briefly demonstrate all the aspects of the MAS Archive, Portal, Support Hub and Cabinet. Thus, all users will be in position to easily navigate through the different components of the Platform without having to spend more than 5 minutes to get accustomed to its main functionalities.

Specific information will focus on guidance for integrating live demonstrations of implementation of the MAS Cabinet in regular classroom activities and in providing students with the necessary support for their multiliteracies learning process. Furthermore, guidance should focus on sharing good practices and methodologies, as well as in communicating inside the pedagogic community, which is a part of the MAS Portal and Support Hub.

Online tutorials and manuals should provide clear information on:

Publishing learning scenarios and lesson plans.

Creating your version of MAS Cabinet. The MAS team has created different versions of the MAS Cabinet and the educators can further differentiate them and create their versions, depending on the learning goals set.

Modifying the MAS Cabinet. Teachers adapt existing MAS Cabinet, to address the needs of their students.

Publishing the MAS Cabinet version created. Teachers publish their MAS Cabinet version, which can then be saved by another teacher as a blueprint to be modified and saved in a different final form. This mechanism enables reuse or MAS Cabinet versions and saves time.

Using the MAS Cabinet. Teachers run activities using the MAS Cabinet. Students use the MAS Cabinet provided by teachers to create their own exhibitions.

Multiliteracies Assessment Zones Schema. Students engage in multiliteracies learning and are assessed in formative ways, such as online rubrics and the Assessment Zones Schema. Teachers monitor student progress through the Assessment Schema.

Pedagogical Learning Scenarios (PLSs). Teachers create learning scenarios for MAS Cabinet. Students use learning scenarios provided by the teacher when studying in the dedicated MAS Cabinet.

Searching for partners in the MAS Portal. Teachers search for museums and vice-versa, using various search filters, e.g., age and scientific domain.

Social features. Individuals and institutions tag, comment and rate MAS Cabinet versions created and PLSs, and share them on social networks.

Recommendation. Recommendation of MAS Cabinet versions created and PLSs are provided when searching, creating and editing PLSs and the MAS Cabinet.

Scaffolding. Students receive assistance from scaffolding apps (e.g., prompts and feedback), based on learning analytics and teacher configurations.

5.3 Online support for other users

Manuals will be also the most essential support to other users such as students, lifelong learners, but also researchers and learning designers. Manuals will be produced for each category of users in order to help them make the best use of the MAS Platform and its tools and services. The manuals will be available online through the MAS Archive repository, so that everyone may have access to them. The manuals for different users will be tailored to their needs and requirements, for example a simplified language will be used for students. In order to support different users even more effectively, a brief tutorial in the form of a video may also be tailored to their needs, briefly illustrating specifically the functionalities that they are most likely to make use of. Thus, users will be in position to easily navigate the different components of the repository without having to spend more than 5 minutes in getting accustomed to its main functionalities.

5.4 Offline support

All online manuals and guides should be provided in downloadable and printable files so that the different categories of users can have access to them offline too.

About the MAS Hub

This section gives an introduction of the tools and guidelines that will be prepared and hosted on the MAS Platform to encourage and foster the community building between museum educators, teachers, students and other potential users of the Infrastructure. Below, the main services are listed by target group.

Table 3. Specifications of the MAS community support environment

Community Support Environment services	
Item name	Target Group
Digital Manuals for the use of the MAS repository its tools and its services	Teacher
Video tutorial on how to make a MAS Cabinet environment for students	Teacher

News section for upcoming training courses, workshops, contests and other initiatives undertaken	Teacher
Forum	Teacher
Thematic groups of discussion and sharing of content at MAS Support Hub	Teacher
MAS Portal services for increasing collaboration	
Personal Profile	Teacher
Search and View other institutional profiles	Teacher
Share updates through Facebook and Twitter	Teacher
Share the edit rights of MAS Cabinet versions and PLSs	Teacher
Commenting service on the MAS Cabinet versions and PLSs	Teacher
"Like" button	Teacher
"Add to favorite" button for MAS Cabinet versions and PLSs	Teacher
"Follow" button for other teachers	Teacher
Communication via Messages between teachers	Teacher



Add photos from events in the personal profile	Teacher
Invite others into MAS and into thematic groups.	Teacher
Recent activity wall Star rating for MAS Cabinet versions and PLSs	Teacher Teacher

The MAS Support Hub will be the main mechanism of teachers' support. All teachers' support related services and material will be accessible through a section integrated into the Hub. This section will be the community support environment, where teachers will be able to find out about the upcoming online courses and winter or summer schools, workshops and news or other initiatives. To further increase the collaboration between museums and schools and the MAS team, a discussion forum will stand out in the MAS Support Hub. Teachers will be able to discuss with other teachers about activities and their implementation or ask colleagues for help. The teachers' community forum environment, could be organised into thematic areas, so that teachers will be able to communicate more easily and find support based on the subject area (language, arts etc.) they are interested in. Each area will focus on one subject and teachers will be able to retrieve information and footage (good practices, related virtual museums and MAS Cabinet Learning Environment, forum topics), based on their subject of interest.

In order to further develop the peer-to-peer collaboration, different elements can be adopted in the MAS Support Hub and MAS Portal. For example, teachers can also be enabled to leave comments to each other either through their personal MAS profiles or by leaving comments in a MAS learning environment. Teachers will be able to look at other teachers' profiles and view the MAS learning environment they have created.

6. SUPPORT TO USERS CONTRIBUTING AND USING EDUCATIONAL RESOURCES

6.1 Content sharing

The MAS Archive will offer the possibility to get personal support from other teachers (such as with an exchange of tutoring time between the users). The additional support materials offered by the project have been described in the previous sections.

The value of sharing in forming, sustaining development and further expanding a strong community of teachers has been proven in various EU funded projects and research findings. Through well-structured, organised, easy to use portals and educational repositories that these projects have set up, the communities of participating teachers can access, upload and share educational resources, learning activities, teachers' experiences and best practices with other fellow teachers at local, national and international level. Furthermore, the teachers themselves have the possibility to evaluate the quality and effectiveness of the educational content providing in this way an indirect multiplication factor for the widespread use and adoption of the best practices on offer. This cascading effect is one of the key features that underlines and gives a practical essence of the value of sharing content, experiences and practices within a community or among communities.

This model of proven success is also adopted within the framework of MAS, where a section dedicated to the use of MAS Cabinet will be developed and gradually expanded and become self-sustained by the teacher communities. The MAS Archive, developed under WP5, is the main entry point for teachers to get an overview of available learning scenarios, obtain access to the MAS Cabinet, and other educational material. Through the MAS Portal, both teachers, museum educators and other users will be able to search, find and connect with other institutions. The portal will serve as a gateway to virtual partnerships and associated museum-multiliteracies learning activities for teachers and students. Through it, they will also be able to download, modify, upload and share learning plans and other educational content related to the use of the MAS Platform and its tools.

It is envisaged that during the training events offered to teachers, such as the workshops and webinars, users of the Platform will be guided and supported on how to use the MAS Portal and exploit its functionality and services to the maximum possible level even by inexperienced users. In order to become an effective community building tool, the MAS Portal is supplemented by the MAS Support Hub in an attempt to provide continuity to the educators and other users. In relation to this need, some of the sustainability issues of the MAS Platform (which will be discussed in greater detail further on in the project) is mentioned here. The MAS Platform will stay operational and in use after the end of the project. The MAS team is committed to maintain the MAS Platform after the end of the project, to keep the momentum in this cross-disciplinary domain and keep its own leading position within these international initiatives. In addition the ownership of the portal will be open to share with bigger

foundations and associations, and will evaluate during the project whether this is the best option to ensure a broad branding and support for the Platform.

6.2 Intellectual Property Rights (IPR) support

IPR support is of vital importance of users of the MAS Portal and more specifically of those creating new material or sharing their own material.

It is clear that all virtual museums connected to the MAS portal remain the property of their respective organizations. The terms of use should be clear and a memorandum of understanding should be in place between the lab owners and the consortium.

For teachers creating and sharing materials online, international standards like Creative Commons and Open Educational Resources Support can be adopted.

Open Educational Resources provide two very useful tools for copyright and licensing. Tools like these should also be provided in the MAS portal.

7. CONCLUDING COMMENTS

In order to build a strong community of teachers and other types of users around the MAS Platform, effective guidance and support mechanisms must be in place. These will have different forms according to the profile, needs and requirements of the users, as it has been described in detail in the preceding sections.

The support services for the MAS Platform will progressively be developed for every type of user. Of course their implementation will grow and improve flexibly changing the approach used to explain concepts or describe procedures according to the feedback collected from the users. More and more of such mechanisms will become available as time passes, to accompany the growing scale of piloting activities in the two years of the project and beyond.

The MAS project is mainly targeted to educators, school teachers first and museum educators secondly; therefore this user group has absolute priority over the other users, together with the other professionals connected to schools, such as school leaders and other school staff involved. From a qualitative perspective, formative evaluation instruments for Partners/project teams are in place and feedback from users will be collected both informally, by asking questions during any kind of interaction or workshop, and through formal feedback seeking mechanisms and tools through the Practice Reflection Workshops. This close connection with the final user will ensure that the MAS team keep a constant tension on improvement of the support services. Every six months an internal quality review process will be conducted, either as an informal check-up of the status of the implementation or as a fully-fledged formal practice, according to the form that best fits the needs of the project at the time. Risks connected to the use of the MAS Portal and its use will also be assessed in



this instance and appropriate contingency plans will be prepared and when necessary speedily implemented.

The results of this enquiry will feed into the ongoing service improvement plan. Optimisation and scalability will be two key criteria to define realistic objectives for quality improvement in order to make an efficient use of the resources of the project, which are of course limited.

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