Abstract
This paper aims to highlight how the use of a specific ePortfolio tool, Mahara, within a primary school has led students to a different perception of the subjects and the content of the lessons studied. Writings produced by 18 students during the last year of primary school will be investigated in order to show how the use of ePortfolios could support reflection and construction of a personal learning path in 11 years old students. In addition, this research will highlights how the use of ePortfolios could produce an improvement of learning through the stimulation of students’ motivation. The analysis of the activities and comments shows how, starting from a partial reflective attitude, and from the perception of the single lesson as an isolated event, students learn to reflect on their learning pathways, generating views that try to grasp the meaning of the whole learning path and the relationship between their learning and the future development of their student career. Starting from a limited reflecting attitude through which students could only discuss their present time, the improvement of their reflective skills could support them to plan their future. Some features of the tool used, such as its friendly “look and feel” and its structure, similar to that of many social software, have acted as a powerful motivational factor in overcoming difficulties often associated with the use of ePortfolios.

Introduction
A great amount of studies on portfolios and electronic portfolios in education have examined the impact of this tool on students reflection (Grant, 2009; Rossi & Giannandrea, 2006; Jafari & Kaufman, 2006). Indeed, research on ePortfolio use in primary education, is still rather limited (Barrett, 2009; ESUSD, 2009) and this area needs further investigation, especially in the Italian school context.

EPortfolio can be considered as a useful tool to support authentic assessment (Hartnell-Young, 2006). An analysis of its characteristics can highlight that it can also be considered as a tool to enhance the reflective attitude of students (Doig et al., 2006) and to help them in order to develop a better awareness of their pathways (Flanigan & Amirian, 2006). For this reason, its characteristics should be modeled on the needs of students.

Through the use of ePortfolios it is possible to create a link between the scholastic context of students and the reality that they live outside school. In this way, ePortfolios can establish a convergence between formal learning and informal learning, a winning strategy in order to create an efficient formative environment (Prensky, 2001; Jenkins et al., 2009).

This paper aims to highlight how the use of a specific ePortfolio tool, Mahara, within a primary school, has led students to a different perception of the subjects and the content of the studied lessons. The use of ePortfolio has fostered the construction of a personal learning path in 11 years old students in order to prepare them to their transition in secondary school. The growth of students’ motivation could produce an improvement of learning. The social aspects associated with using Mahara have influenced the positive perception of the school work. The presence, within the online learning environment, of social tools like blogs, forums, groups of friends to ask for contact and friendship, has meant that the ePortfolio building work was mediated and supported by social activity (Ito et al, 2010). During the first phase of the work students concentrated mainly on the relational aspects of the tool (Giannandrea & Sansoni, 2011) and only in a second phase they focused on aspects related to the disciplinary and classroom activities. The similarity of some of these activities with
social software that some kids use every day outside the classroom has increased the motivation to use and familiarize with it almost immediately.

Background and context
The research was conducted within a primary school, in particular within the institute Vincenzo Monti of Pollenza (Macerata). The group that took part in the research consists of 18 pupils that attend the fifth and last class of primary school. The choice was not accidental, but the result of at least two fundamental considerations. The first concerns the idea that, perhaps, 10 years old children may be able to manage and work with ePortfolio tools both in the design aspects, and in terms of technology. The second is related to the fact that we considered appropriate to conduct this type of activity in a particular stage of schooling, that anticipate a change perceived as exceptional: the transition to secondary school. In this case, ePortfolio would reveal all its opportunities, as a tool that can follow the individual during the whole course of life, in particular way during more critical situations. Students could use it to know themselves in a better way and to make a self-assessment before embarking on a new journey, perceived as more challenging and complex. Teachers may use them to make an assessment at the end of the path even more authentic. Last but not least, teachers of secondary school could look at it to know the work done by students during the last year of primary school and to prepare linking activities of mutual understanding.

From the beginning of the experience, the children assumed a positive attitude towards our initiatives. In spite of this general euphoria, we had immediately to deal with the existence of relatively limited resources. The class had got eight computers. Just five of them were properly connected to the Net. Moreover, during the course of the experience one of them has stopped working, so there were only four machines for eighteen children. Anyway, in spite of all these difficulties, children's participation in the project has always been high. The number of entries in the platform and the frequency of access show a regular and continuous involvement throughout the duration of the project. This fact is also documented by the number of groups created (over 90) and the amount of materials inserted (each student has added an average of 8 artifacts with their comments, during a period of about 2 months).

We can outline three phases of work. At a first stage, student accessed the platform and used it as a social software, discovering most of all the playful aspects of creating groups and searching friends. At a second stage they were engaged in collecting and choosing materials to insert in their personal space. In the third phase students developed a growing awareness of the potentiality of the tool and their reflection deepened. In this final situation they started to think about future perspectives of learning and change.

Structure of the experience
We used the resources that we had in order to create a comfortable context that could help children to understand the sense of the project. At the beginning, we let them some time to become familiar with Mahara and its functions. During this phase they were very attracted by its communicative aspects. Few days later they spontaneously understood how to carry out their own profile, how to take friends and how to share groups of interest. After this initial moment of knowledge with Mahara, we showed children how to interact with that tool in a quite different way. So, we told them to choose the most meaningful works among all the ones made at school. Then, they could put them on their ePortfolio, linking an explanation of the reason why they had chosen each material. Later on, we invited children to open and see the virtual folder in which they had put their artifacts. We would like to show them that through that collection they would live again the fundamental moments of their learning path. So, we asked them to select, this time among all the works collected, those that they considered the most important ones. These works could become accessible in a structure called view, by all the users, together with a text through which they could analyse the whole learning path.

Analysing the texts produced by the children we have searched traces and data to support our research hypothesis. In particular, we investigated if the use of ePortfolio could allow users to improve their reflective skills, to improve motivation among students and to help them projecting themselves towards future.
Data collection

Analyzing the materials produced by the children during the process of collection of artifacts in the ePortfolio and during the phase of production of the first views, we can see that there has been a progressive improvement in their reflective skills. This is what emerges, for example, by reading the descriptions associated to the materials posted by Alessandra:

15/11/2010 – I have liked this text a lot even because I have got a very good mark and because my teacher has liked it a lot.
22/11/2010 – I have liked this text because I have got eight and because I like Greece.
27/01/2011 – I have chosen this design because I have liked it a lot, even because my sister is lion.
14/02/2011 – I have liked the poem because I have invented it.

At the beginning, like many of her classmates, Alessandra says that she chose a text because she liked it a lot. Then, she adds that the reason why she liked it was that the teacher had given her a good mark. In this case, therefore, the selection of Alessandra seems to be influenced by external factors, in particular by her teacher’s evaluation. With the second material it happens something that is apparently similar, but basically different. Actually, Alessandra, says that she liked a text about Greece because she loves Greece and because she had a good mark. This time, therefore, the motivation is both intrinsic and extrinsic. When she posts the third work, the design of a lion, Alessandra continues to make a reference to other persons, but this time it is someone connected to her everyday world and family, that is to say her sister. Her reflections became closer and closer to the real world of Alessandra outside school. Finally, Alessandra chooses a poem explaining that he did so because she had invented it by herself. Even if it is the shortest reflection, it is also the most meaningful. Now the child is totally focusing on herself and on the learning path that she lived and built. The most interesting thing to note is how this capacity is reached by passing through different phases. Initially she was linked to the opinion of other people related to the school context, then she moves towards an emotional point of view and, finally, she is completely focused on her potential. Not all the children have followed the same path. In some cases, for example, from the beginning some of them have been able to focus on their own experience, without external interferences. The change, then, has happened in a different way, as in the case of Camilla, of whom we propose two descriptions:

18/11/2010 – I have chosen this poem because it has got very beautiful words.
06/12/2010 – I have chosen this summary because I have liked the story a lot and even because I have understood that it is necessary to be friends for ever.

At the beginning the child concentrates on the characteristics of the selected products, then she begins to think about the relationships between the topics addressed at school and the world outside school. Her reflection, therefore, is no longer confined to the analysis of the surface of the artifacts included, but reaches a deeper level, since Camilla begins to think about the meaning of what they have learned. Also Chiara is able to focus her attention on herself, producing some of the most interesting explanations, such as the following:

13/12/2010 – I have chosen this poem because I have liked it a lot, because it has touched my heart. Thanks to it I have understood the pain and the sufferings that Ungaretti lived during the war. I have understood how much the war can be difficult, cruel and painful.
27/01/2011 – I have chosen this problem of geometry because I have engaged myself in making the figure, even because, in the whole class, I was the only one that managed to solve it.

In the first case Chiara reflects upon an Italian poet of the twentieth century, therefore, she is talking about a fairly complex topic. In the first part of the discussion she explains the effect that the poem caused in herself. Later on, she refers to the poet to tell the emotions felt by the man during the First World War. Finally, she comes back on herself to express a very important fact: Chiara now has understood how war can be painful and hard. Chiara, then, makes explicit what she thinks to have learnt on that occasion. In the second case, the attention of Chiara on herself is even more evident.
She tells us how much she has been involved and expresses a sense of personal pride when she declares to be the only in the whole class to have successfully solved that problem in geometry. In other occasions Chiara talks about her involvement, like when she describes an artifact that she did not like very much:

24/02/2011 – I have not liked this text because I have made a lot of mistakes, and because I haven’t liked this kind of text, in fact, I haven’t engaged myself very much!!!

In this case, the reflection reaches very high levels, because the child now is ready to admit to have engaged herself not so much and to deal with her difficulties. She also states the reason for her weak performance, claiming not to like that kind of work.

When children have begun to produce the first views, their thoughts have become more articulate. In some cases, the students take again the descriptions made during the process of insertion of materials and extend what they had previously written. In other cases, however, there is a change related to content.

In the case of Elia, of which we propose two extracts from his first view, you may notice a progression in thinking within the same text:

I have been attracted by different arguments and activities. The topics that I have liked most are all the people that we have been studying, but also I have liked to discover my region, that is to say the place in which we are living and its characteristics.

In the first part of the quotation, Elia makes a superficial and indiscriminate analysis of the activities experienced at schools. He states that he has appreciated them in general. Soon after, however, he makes a specific choice, telling that the subjects that he has loved most are history and geography. Finally, linking these materials to his world, he argues that it was exciting to discover the characteristics of the region in which he lives. In this case it is interesting to notice the verb that Elia decides to use: to discover. Geography is seen as a breakthrough, of which the child is a protagonist and not only as something that will allow him to receive a mark.

The greater complexity of thought leads Elia, at the end of the same view, to project himself towards the near future and to discuss his points of strengths and of weaknesses:

I have to try to engage myself more in oral tasks. Instead, when I am doing written tasks or when I am drawing I usually engage myself. Thanks to school I have been learning a lot, but I would like to improve in all oral tasks and I would like to know foreign languages.

Elia exhibits the ability to distinguish between tasks that he could solve better and those that he cannot. Elia, moreover, does not merely list the subjects where he gets better results but is able to understand the difference between written and oral activities.

Also Diego has demonstrated to have good reflective skills, as you can see reading the first lines of his first view:

The subjects that I have liked most are the following: geography because I have discovered a lot of traditions and cultures about the Italian regions and history because I think that the Etruscans were very cool!!. I have liked them as people and I really would like to study the whole history of Rome. I am waiting with anxiety the written test of geography and history because I want to engage myself in the best way and I hope to improve more in all the subjects.

The reflection, in this case, is particularly spontaneous. We can notice it from the fact that he chooses to use informal expressions and words to express his preference for two scholastic subjects, such as history and geography. This means that the child applies to the scholastic dimension the typical way of family communication, establishing a link between those two areas. Finally, as Elia has done, Diego thinks about himself in the immediate future, saying that he is waiting with anxiety the test of history and geography, because he would like to gain an official recognition of his commitment and his dedication.

Another interesting case is that of Chiara:
Going to school I learned many new things, but there are materials that have impressed me and I liked more than others. For example, in history, our teacher made us write an outline about the "Ancient Italian people", although it was very tedious to write, the review helped me a lot for the written examination, in fact, I obtained a very good mark. So I have to thank the teacher for helping me in order to get a good mark.

Like many other children, even Chiara at the beginning expresses a general appreciation for the matters addressed at school, which she describes as "new things". Later on, she makes a specific choice for history. Her analysis becomes more detailed when she decides to talk about a single task: the realization of a scheme. This task is defined with specific terms, as it is boring, but at the same time useful. According to her preferences, therefore, doing schemes does not represent an attractive activity. Yet, the depth of reflection leads her to consider the usefulness of the same activity, that helped her to prepare for the written test. Finally, Chiara would like to thank her teacher because she helped her, a very interesting phrase which shows that Chiara feels the cooperative nature of the relationship with the teacher, who does not impose something but suggests a task and Chiara now understands its effectiveness.

Another text that we can propose is the following, written by Michele M.:

The activities that I have liked most are: the project about the study of the human rights and the nice moment that we gave to old people at a nursing home. In the Mahara-portfolio I have been putting a lot of my works. For example the draw that I cannot do, but after a lot of practise and a lot of engagement I became able to do it. When I made this draw I believe that I was good in engaging myself and I am happy to have got it in my electronic portfolio.

When Michele talks about the most important activities for him, he makes an interesting choice, because he describes a visit to a nursing home for old people. Through his reflection the child has understood that the school is not just math, history or geography, but it is also made of experiences that can help us to understand all aspects of life. Later on, he chose to talk about a plan that initially he had failed to do. Engaging himself and practicing over and over, at the end he managed to do it. For this reason, he expresses a sense of pride and evaluates himself as a good student. Finally, he declares to be happy, because now he can put his artifact in his ePortfolio, that he considers as a place where you can show your successes.

When children realized their last views, their reflective skills reached high levels. This fact allowed them to project into the future, discussing their entry into the secondary school and, in some cases, discussing their professional future.

The first example that we can propose is that of Francesco:

I think that in the future I will need a lot all these things. For example I could explain them to my children, if I will have children and when I made these works my brain has received knowledge and information. When I will go to secondary school, I think that the first few days I will not feel so good and I will be sad because I have to leave my teachers and primary school, but I'm sure that after a while everything will change and the things I have learned here in primary school will help me a lot for the secondary school, for the college (if I will go there) and also in my life and my future. I will be also helped by the things and curiosities that my beloved and adored parents have showed to me, including my brother, of course.

At the beginning, his explanations are not very clear, especially when he talks about his future as a parent. Later on, he wrote something about his brain, which, during the course of the year, has been receiving new information. From his words it is possible to imagine that Francesco sees the school as a place where you can learn new things. Yet, he considers it as a place where you only receive information without any personal processing. All this things may help us to understand the child's general attitude towards school, an attitude quite passive. During the rest of the text he faces with more evidence the question of his transition to secondary school, that he lives with fear, like many of his classmates. In the case of Francesco, moreover, there is also a certain nostalgia for the fact that he must leave the primary school. In the final part of the text, Francesco links his reflection about the
scholastic future to his family life, declaring that he will need everything he has learned from his parents and brother. Although in this case he shows his passive attitude towards learning, Francesco is able to consider his growth as something that occurs both in a formal context, such as school, and in informal context, like that of family.

Another child, Michele V., through reflection became able to project himself into the future, but he does so with greater precision:

_I really would like to become an archaeologist and then I will need two topics that we have done in history. But I will need also “horror” text (they studied different kind of text and produced poems, novels, police fiction and thrillers n.d.r.), that I will need in secondary school. Thanks to the work with Mahara - Portfolio, now it is as I have studied the same topics twice._

In the first part of the text Michele V. shows that he firmly knows what he will be as an adult: an archaeologist. For this reason, he says that he likes history and that the activities made in that area might be useful in the future. The interest for history is confirmed in the section of the posted materials, which mainly belong to this area. In the second part of the text he makes a meta-reflection about ePortfolio, supporting its effectiveness. He declares that he considers it as a tool that has helped him to study, because it was useful in order to return several times on the same topics.

Another girl makes a similar reflection, talking about ePortfolio as a site that she would continue to use throughout her life:

_I'll use this site when I grow up, although I will have not so much time because I will be working a lot. Talking about the work, I would like to open a farm with a friend of mine, named Mary, who agrees with me! Many people think this is absurd, even Marilena perhaps ... I hope not! However, I truly believe in this decision, so I will attend the agrarian school and then ... maybe ... if it is necessary, I will go to University!!!_

Even Chiara, therefore, closes her reflection thinking quite clearly about her future projects that she shares with one of her friends. At the end of the text we can see how the child consider the ePortfolio as something public, because she is worried about how other people might perceive her dreams. This indicates that Chiara has perfectly understood the difference between the sections of the portfolio that will be visible only to her and those, like the views, which will be accessible by any registered user. In spite of her fear, however, she is able to describe her intentions, sign that she perceives her ePortfolio as a place where you can express yourself with freedom.

**Conclusion**

In conclusion, this experience shows that the constant viewing and revisiting the great amount of work inserted in their Mahara ePortfolio has made the children aware of development, achievements, strengths and weaknesses of their artifacts. This kind of activity fostered reflection, implementing a three stage process, because at first children reflect on the selection of the artifact, after they focus on the whole amount of the work produced, and finally they have to choose several different pieces of their work to compose a view. This trajectory supports a reflective attitude, made of private choices and public comments and explanation. The analysis of the writings describes how reflections became deeper and more competent during the three phases of the use of the ePortfolio.

In terms of the impact on learning, we can say that some children manage to change their initial perception of disciplines from a first viewing of different separate contents, detached from each other, to a perception of a unified and holistic space of knowledge bringing together all the pieces of knowledge studied.

In our opinion, the use of ePortfolio technology, has acted as a bridge to facilitate the shift from primary to secondary school. The idea to use a software that supports reflection processes, but also allows to organize planning, materials and actions facilitates the transition and permits the children to access all their “old” products and to bring them to the new school.

From the secondary school teachers’ point of view, having a tool where learning evidences are available and collected, makes easier the welcoming and the starting phase of the new class.
Finally, the social aspects that in the first phase collected all the attention of the children, could be seen as the motivational factor that could foster the adoption of the ePortfolio in further school level. In our research plan we design to maintain the Mahara ePortfolio for the next three years, during the first phase of the secondary school, in order to analyze how the social aspects of the tool affects learning experience and modify the use of the communication tools inside the ePortfolio, such as forums, blogs, etc.

References
Authors

Dr. Lorella Giannandrea,
Università degli Studi di Macerata, Dipartimento di Scienze dell’educazione e della Formazione.
Piazzale Bertelli, Contrada Vallebona, 62100 Macerata, Italy, lgiannandrea@unimec.it.
Dr. Marilena Sansoni,
Università degli Studi di Macerata, Dipartimento di Scienze dell’educazione e della Formazione.
Piazzale Bertelli, Contrada Vallebona, 62100 Macerata, Italy, mari79@live.it.