MLEARN

Training teachers to use mobile (hand held) technologies within mainstream education

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Research Report

Outcomes from a training programme to support mobile learning and information and communication technology teacher training in MLEARN partner countries

Don Passey
Professor of Technology Enhanced Learning

Joana Zozimo
Research Associate

Centre for Technology Enhanced Learning
Department of Educational Research, Lancaster University

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1. EXECUTIVE SUMMARY

Background

1. This report has been produced by the Centre for Technology Enhanced Learning in the Department of Educational Research at Lancaster University for the MLEARN project. The report provides evidence of outcomes of a training programme for in-service teachers focusing on mobile learning through appropriate pedagogic uses of mobile or handheld technologies. The MLEARN project, a European Union (EU)-funded project, has explored and promoted teacher development of mobile learning practices in four member states – the Netherlands, the United Kingdom (England), Greece and Italy.
2. This third report (following previous reports by Passey and Zozimo, 2014a, 2014b) analyses evidence following the training events, arising from learners and teachers across the period of the project. Evidence was gathered using online surveys; in some cases, surveys were completed offline, these were sent to the researchers, who then included them in collated results, or they were initially translated by partners prior to collation. Survey evidence was gathered on five occasions across the period of the project: after 2 months, 3 months, 5 months, 9 months and 13 months from the start of use.

Findings from learners

1. In total, 985 learner responses were received. These responses included learners who may have responded on more than one occasion, but not necessarily on all occasions.
2. Within short periods of time (within 2 months from the start of use), most learners found the mobile devices easy to use, and enjoyed using them; some 1 in 100 to 1 in 10 exceptionally did not find them easy to use. The majority found the size to be appropriate for their needs, and they could easily see images and read text. Uses varied, according to country and according to the period of the project. Writing text, taking pictures, recording video, and looking at websites were most commonly reported. Most learners felt they were benefiting – technically, cognitively, socially, and widening how they were learning.
3. This pattern persisted across the period of the project, but, in the final survey (after 13 months of use), reported uses were more limited, as were reported benefits. These shifts could have been due to the smaller number of countries reporting in this survey. However, if not, then these shifts suggest that after a year, uses tend to revert to more 'traditional' practices within schools. Productive uses of the mobile technologies are reduced when this happens, while receptive uses increase. These findings suggest that teachers may be associating choices of use with a 'one-year project' rather than 'persistent and integrated use'.

Findings from teachers

1. In total, 202 responses were received from teachers. Again, not all teachers responded on all occasions.
2. Teachers from across the kindergarten, primary, secondary and vocational school sectors found the mobile devices easy to use (with some exceptions where teachers were managing activities to support learners with severe special educational needs or due to legislative requirements). Most said they enjoyed using the devices. Engagement, independent learning, socialisation and avoiding limitations of time and place to access learning were commonly reported as benefits arising.
3. Across the period of the project, ease of use and enjoyment of use of the mobile devices was rapid (happening within 2 to 3 months of the training). Teachers continued to find ways to use the devices. Collaboration was clearly increased during the period of the project, and sharing work with others, both peers and teachers, was felt to offer improvement and enhancement.

Findings from Italy

1. Most pupils found the mobile devices easy to use (about 1 in 10 did not), and they enjoyed using them. Some pupils required more support and training in use of the devices than did others. The devices were used in classrooms, with groups, as well as individually.
2. The devices were used in a wide range of ways, particularly focusing on sharing of work with others, both peers and teachers. The impact of this on learners was demonstrated by their

responses, indicating more time spent with teachers, and increased enjoyment of school. Benefits from using the devices were identified by the learners across the period of the survey – up to 9 months from the start of the project.

3. The devices were used regularly by teachers, about once a week on average. Most reported positively on ease of use and enjoyment. Common uses reported included collaborative work, and creation of videos and cartoons. Benefits were reported across the period of the project (9 months from the start), including positive benefits on engagement, motivation, confidence, deepening of topic knowledge, socialisation, flexibility, and working in 'an adult world'. The importance of the latter two was stressed particularly by teachers.

Findings from Greece

1. Most pupils found the mobile devices easy to use (about 1 in 100 did not). The devices were used outside classrooms (due to legislation adherence requirements), by groups, as well as individually.
2. The devices were used in a wide range of ways, particularly focusing on sharing of work with others, taking notes outside school, taking pictures, and recording videos. The impact of this on learners was illustrated by their reports of using more time doing school work, thinking about their work more, and finding out more about subject topics. Benefits from using the devices were identified by the learners across the period of the survey – up to 13 months from the start of the project.
3. The devices were used regularly by teachers, at least once a week on average. Most reported positively on ease of use and enjoyment. Common uses reported included interdisciplinary work and planning. Benefits were reported across the period of the project (13 months from the start), including positive benefits on engagement, motivation, independent learning, interactive learning, flexibility, and removal of limits on learning in terms of time and place. The importance of the latter four was stressed particularly by teachers.

Findings from the Netherlands

1. Most pupils found the mobile devices easy to use. The devices were used in classrooms, with groups, as well as individually. The devices were used in a wide range of ways, particularly focusing on sharing of work with others, both peers and teachers. The impact of this on learners was indicated by their responses of increased enjoyment with school, doing more school work and understanding things better. Benefits from using the devices were identified by the learners across the period of the survey – up to 9 months from the start of the project.
2. The devices were used regularly by teachers, about once a week on average. Most reported positively on ease of use and enjoyment. Benefits were reported across the period of the project (13 months from the start), including positive benefits on engagement, motivation, socialisation, accommodating learner levels, not limiting learning, flexibility, faster learning, independent learning, and customised learning. The importance of the latter six was stressed particularly by teachers.

Findings from the UK (England)

1. Most pupils found the mobile devices easy to use (about 1 in 10 did not). The devices were used in classrooms, with groups, as well as individually.
2. The devices were used in a wide range of ways, particularly focusing on sharing of work with others, both peers and teachers, taking pictures, recording videos, and creating presentations. The impact of this on learners was illustrated by their responses that they were learning more about topics, learning new skills, improved enjoyment of school, doing more school work, and getting improved marks in school. Benefits from using the devices were identified by the learners across the period of the survey – up to 13 months from the start of the project.
3. The devices were used regularly by teachers, about once a week on average. Most reported positively on ease of use and enjoyment. Common uses reported included collaborative work, researching for information, sharing and publishing work, and recording performances. Benefits were reported across the period of the project (13 months from the start), including positive benefits on engagement, motivation, independent learning, interaction, and improving the quality of work. The importance of the latter three was stressed particularly by teachers.

Conclusions and recommendations for the future

1. Overall, the training and the uses that followed can be considered successful. Positive outcomes arose, reported by both teachers and learners alike. The mobile devices were able to be used successfully by teachers and learners, irrespective of their curriculum (although the need and ability of teachers to adapt uses to their curriculum and legislative requirements was clear).
2. In terms of forms of activities undertaken, however, the teachers reported in total, across all countries, the following numbers of examples of activities being undertaken after 9 and 13 months of use: “Review and reflect” (23), “Think forward” (4), “Listen to my explanations” (14), “Snap and show” (11), “This is what I’ve done and how I’ve done it” (15), and “Tell me how I could improve this” (13). It is clear that “Review and reflect” was a much more popular activity than the others. In future development, the importance of “Think forward” activities would appear to be in need of much greater attention, perhaps balanced against a reduction of emphasis on “Review and reflect” activities.
3. While the training programme would appear to have the potential to support wider use in schools in different countries where curricula differ, it is also salient to note that schools might consider this as a ‘undertaking a project’ rather than a ‘moving to a standard practice’. It might be that the state of play after one year needs to be considered carefully. If teachers do consider this training as a project, then how the outcomes of such a project can be integrated into ‘standard practice’ also needs to be considered and developed appropriately.

2. INTRODUCTION

This report has been produced for the MLEARN project, to provide evidence of the outcomes of a training programme for in-service teachers, focusing on mobile learning through appropriate pedagogic uses of mobile or handheld technologies. The MLEARN project, a European Union (EU)-funded project, has explored and promoted teacher development of mobile learning practices in four member states – the Netherlands, the UK (England), Greece and Italy. The project initially considered how teachers could develop and use pedagogies to support activities with learners using handheld or mobile devices in and outside classrooms. The Centre for Technology Enhanced Learning in the Department of Educational Research at Lancaster University was commissioned to undertake background and specifically-focused research to support the project development and to identify outcomes arising.

A previous literature review (Passey and Zozimo, 2014a) offered perspective on how relevant teaching practices, methods and pedagogy are used with handheld devices and how these can support or enhance learning. That review was based on evidence gathered from partners and a number of key contacts, from partner country and EU sources, and from a detailed review of a specifically selected number of academic papers published between 2008 and 2013. It offered background information for the MLEARN project, pointing towards future avenues for training development and research.

Findings from that report were used to develop a training needs analysis, to gather details from partners, trainers and teachers who would be involved in the initial stages of the MLEARN project. A second report (Passey and Zozimo, 2014b) detailed the findings of that training needs analysis. It provided findings at a generic level (from all teacher respondents, and from all trainer and partner respondents), as well as at a more specific national level. Points raised by these findings were highlighted and brought together in order to offer recommendations about the structure and content of a training programme that would fit the needs of teachers and trainers, generically and nationally.

This third report uses evidence following the training events, provided by learners and teachers across the period of the pilot. Survey instruments were designed to focus on key points identified in previous reports as those fundamental to supporting qualities of learning and teaching. The evidence was gathered using online surveys; submitted evidence online was returned electronically to the researchers at Lancaster University. However, in some cases, surveys were completed offline, were sent to the researchers, who then included them in collated results. In other cases, responses were translated by the partners; the translations were sent to the researchers, who then collated them with other responses. Examples of the survey instruments are shown in Appendix A (for learners) and in Appendix B (for teachers). Survey evidence was gathered on five occasions across the period of the pilot:

- Survey 1 was completed in November 2014 (2 months from the start of use);
- Survey 2 was completed in December 2014 (3 months from the start of use);
- Survey 3 was completed in February 2015 (5 months from the start of use);
- Survey 4 was completed in June 2015 (9 months from the start of use);
- Survey 5 was completed in October 2015 (13 months from the start of use).

To ensure the highest number of responses was returned, it was agreed that each survey remained online until the next survey was uploaded, rather than providing participants with a two-week window to respond. On a number of occasions, survey end-dates were extended, at the request of the partners. On one occasion, the entire submissions from one country were not received electronically; additional time for repeated completion was provided on this occasion.

The surveys sough to gather evidence about a number of aspects that would indicate outcomes about:

- Ease and enjoyment of use.
- Whether size was felt to be appropriate, and whether images and text could be seen and read easily.

- The frequency of use of the devices.
- Where the devices were used, and with what groupings of learners.
- What activities were undertaken by teachers and learners.
- What the outcomes of those activities was felt to be.
- What benefits were identified as a result of uses.

In the later surveys, teachers were asked to identify certain forms of activities being undertaken. These activities, highlighted in a previous study (Passey, 2010), were found to be of particular benefit in other contexts, where mobile devices had been used inside and outside classrooms. They were:

- "Review and reflect", where pupils capture audio, imagery and video during lessons, use these in plenary sessions to reflect on what has been covered, consider the key elements learned, how these fit into wider subject or topic pictures, and how ideas might be used or taken further outside the classroom. The importance of reflection in learning is highlighted by, for example, Schön (1983).
- "Think forward", where pupils access future topic material via the Internet and capture relevant thoughts or ideas to contribute to discussions or presentations in class or through on-line discussions. Pupils can be encouraged to use the handheld devices at home to research topics for themselves. The importance of understanding how to tackle learning, by understanding how to identify sources of support, for example, is highlighted by Vygotsky (1978).
- "Listen to my explanations", where pupils record audio when they are completing homework assignments and these verbal explanations are listened to and marked by teachers. The importance of verbal explanations to learning is highlighted by, for example, Gardner (1991).
- "Snap and show", where pupils capture imagery, which is downloaded to a server and accessed through a computer or interactive whiteboard screen, for wider pupil discussion, perhaps made accessible to parents so that they can see and discuss events that have happened in school. The importance of imagery used in learning is highlighted by, for example, Arnheim (1969).
- "This is what I've done and how I've done it", where pupils create presentations of how they have used mobile technologies to tackle particular activities, which are recorded and made accessible on appropriate web-sites for teachers and parents to see. Observing other pupils' stories and reports, pupils can include sound recordings of their own voice as well as text and pictures to form multi-modal texts. The importance of discussion and explanation in learning is highlighted, for example, by Alexander (2008).
- "Tell me how I could improve this", where pupils can share their work in multimedia formats with peers, mentors, teachers or trusted adults in order to seek comments, evaluative feedback, assessments of their work, and ideas to improve their work. The importance of formative feedback for learning is highlighted, for example, by Wiliam (2010).

The sections of this report that follow provide details of the results, initially from all learners, then from all teachers, by country, and finally conclusions are drawn and recommendations are offered.

3. FINDINGS FROM LEARNERS

The survey population
While the entire learner population from which learners responded to all five surveys was consistent across the study, except in the case of two schools in the UK (England), the entire population did not respond to all surveys. The numbers of learner responses to each survey are shown in Table 1.

	Italy	UK	Greece	The Netherlands
Survey 1	147	61	40	0
Survey 2	133	4	83	0
Survey 3	24	105	53	22
Survey 4	47	9	61	25
Survey 5	0	50	121	0
Total across all surveys	351	229	358	47

Table 1: Numbers of learners responding

Findings from Survey 1
After 2 months of use, responses were received from learners in 3 countries. Learners were from kindergarten, primary, secondary and vocational schools, representing boys and girls.

About 1 in 10 of the learners did not find the devices easy to use. For the majority, the size was reported by the learners to be 'right' and text and pictures could be read and seen easily; but for some, they were not sure how to use them (suggesting more in-class support might be needed for some learners at early stages). Most reported that they liked the devices, but a few said they did not like them (which might have been related to size and visibility of text and images, for example).

Reported uses by the learners varied, with some use in classrooms, with groups of learners, or on their own. Writing text, taking pictures, recording video, and looking at websites were most commonly reported. Most learners felt they were benefiting – technically, cognitively, socially, widening how they were learning, while learners in Italy reported motivational benefits more than in other countries (perhaps relating to their previous experiences or arising from the form of support they were gaining from teachers).

Findings from Survey 2
After 3 months of use, responses were received from learners in 3 countries. Learners were from primary, secondary and vocational schools, representing boys and girls.

Most of the learners reported finding the devices easy to use. For the majority, the size was reported to be 'right' and text and pictures could be read and seen easily; for a few, they were not sure how to use them (and this lack of certainty clearly persisted from the previous month). Most said they liked the devices, but a few said they did not like them.

Reported uses varied, with uses in classrooms with groups of learners, but some on their own. Writing text, taking pictures, recording video, looking at websites and reading text online were the most commonly reported uses. Most learners felt they were benefiting – technically, cognitively, socially, and widening how they were learning.

Overall, the picture had not shifted from that reported the previous month. Reading text online had increased in some cases, however.

Findings from Survey 3
After 5 months of use, responses were received from learners in 4 countries. Learners were from primary, secondary and vocational schools, representing boys and girls.

Most of the learners found the devices easy to use. For the majority, the size was reported to be 'right' and text and pictures could be read and seen easily. Most learners said they liked the devices.

Reported uses varied, with uses in classrooms, some with groups of learners, and some on their own. Writing text, taking pictures, recording video, looking at websites and reading text online were uses most commonly reported. Most learners felt they were benefiting – technically, cognitively, socially, and widening how they were learning.

Overall, the picture had not shifted from that reported the previous month.

Findings from Survey 4
After 9 months of use, responses were received from learners in 4 countries. Learners were from primary, secondary and vocational schools, representing boys and girls.

Most of the learners found the devices easy to use. For the majority, the size was reported to be 'right' and text and pictures could be read and seen easily. Most learners reported they liked the devices.

Reported uses varied, with uses in classrooms, some with groups of learners, and some on their own. Writing text, taking pictures, recording video, looking at websites and reading text online were most commonly reported. Most learners felt they were benefiting – technically, cognitively, socially, and widening how they were learning.

Overall, the picture had not shifted from that reported the previous month.

Findings from Survey 5
After 13 months of use, responses were received from learners in 2 countries. Learners were from primary, secondary and vocational schools, representing boys and girls.

Most of the learners found the devices easy to use. For the majority of learners, they used mobiles every day in school and a few times at home.

Reported uses varied, with many working in classrooms. Looking at websites and reading texts online were most commonly reported. Most learners felt they were widening how they were learning.

Overall, the picture had shifted in some respects from that reported the previous month. Uses had become more limited, and reported benefits had become more limited. These shifts could be due to the smaller number of countries reporting in this survey. If not, then these shifts suggest that after a year, uses tend to revert to more 'traditional' practices within schools. Productive uses of the mobile technologies were reduced, while receptive uses had increased.

4. FINDINGS FROM TEACHERS

The survey population

The teachers responding to all five surveys came from a total and consistent pool across the study, except in the case of one school in the UK (England). The number responding was lower than this total in the case of all surveys. The numbers of teacher responses to each survey are shown in Table 2.

	Italy	UK	Greece	The Netherlands
Survey 1	18	26	8	5
Survey 2	17	1	15	9
Survey 3	1	24	15	10
Survey 4	9	10	2	5
Survey 5	0	14	9	4
Total across all surveys	45	75	49	33

Table 2: Numbers of teachers responding

Findings from Survey 1

After 2 months of use, responses were received from teachers in 4 countries. Teachers were from kindergarten, primary, secondary and vocational schools. Many used the devices 1-5 times, but some used them more often than this (up to 18-20 times). Some teachers did not find the devices easy to use, for logistical or legislative reasons, or due to lack of familiarity or understanding. Most enjoyed using them, but for a few, working with learners with severe disabilities was clearly not easy or not possible. Most found the devices offered greater flexibility and mobility. Most reported benefits concerned with engagement and independent learning, but teachers in Italy reported enhanced motivation and opportunities for working in 'an adult world'.

Findings from Survey 2

After 3 months of use, responses were received from teachers in 3 countries. Teachers were from primary, secondary and vocational schools. Many used the devices 1-5 times, but a few used them more often. Some teachers found the devices easier to use by that time, compared to their ease of use reported in the previous survey. Most enjoyed using them, because they added fun and entertainment to the learning. Most found the devices offered opportunities for collaborative work and for researching information; however, about half of the teachers did not find new ways to use the devices compared to uses in the previous survey. Most reported benefits concerned with independent learning and socialisation; teachers in Italy reported the increase of learners' socialisation particularly.

Findings from Survey 3

After 5 months of use, responses were received from teachers in 4 countries. Teachers were from primary, secondary and vocational schools. Many used the devices 1-5 times, but a few used them more often. Some teachers found the devices easier to use by that time, compared to their ease of use reported in the previous survey. Most enjoyed using them, because they added fun and entertainment to the learning. Most found the devices offered opportunities for collaborative work and for researching information; however, some teachers were still learning how to explore the devices further for teaching purposes. Most reported benefits concerned with independent learning and the fact that the devices avoided limitations of time and place to access learning.

Findings from Survey 4

After 9 months of use, responses were received from teachers in 4 countries. Teachers were from primary, secondary and vocational schools. Many used the devices 1-5 times, but a few used them more often. Some teachers found the devices easier to use by that time, compared to their ease of use reported in the previous survey. Most enjoyed using them, because they added fun and entertainment to the learning. Most found the devices offered opportunities for collaborative work and for researching information; however, some teachers were still learning how to explore the devices further

for teaching purposes. Most reported benefits concerned with independent learning and the fact that the devices avoided limitations of time and place to access learning.

Findings from Survey 5

After 13 months of use, responses were received from teachers in 3 countries. Teachers were from primary, secondary and vocational schools. Many used the devices 1-5 times, but a few used them more often. Most teachers described examples of learner activities, of their perceptions of learning through review and reflection, thinking forward about their learning, listening to explanations others were giving, snapping and showing ideas for others to discuss, showing what they had done and discussing how they had done it, and letting others comment on how to improve what they had done. Most teachers found that the use of apps such as Movie Maker, e-quizzes and others supported students' explanations. Other teachers encouraged their students to share with their peers and to seek peer discussion.

Across the period of the project, gaining ease of use and enjoyment of use of the mobile devices was rapid (happening within 2 to 3 months of the training). Teachers continued to find ways to use the devices. Independent learning and removing possible limitations on time and place for learning were highlighted as benefits, as were socialisation and opportunity to work in 'an adult world'. Collaboration was clearly increased during the period of the project, and sharing work with others, both peers and teachers, was felt to offer improvement and support enhancement.

5. FINDINGS FROM ITALY

Learner Survey 1
Responses were received from learners in 5 schools. About half were from primary schools and half from secondary schools, and about half were boys and half were girls. About 1 in 10 learners did not find the devices easy to use. But, for the majority, the size was right and text and pictures could be read and seen easily; for some, they were not sure how to use them. Most reported that they really liked the devices, and none said they did not like them. Uses varied, with most use in classrooms, with groups of learners, and writing text. Many learners felt they were benefiting – technically, motivationally, cognitively, socially, and widening how they were learning.

Teacher Survey 1
Responses were received from teachers in 6 schools. About one-quarter were from primary schools and three-quarters from secondary schools. About half used the devices 1-5 times, but about one-quarter used them more than this. About half found the devices easy to use, but about one-quarter did not (for technical or contextual reasons). Most enjoyed using them, but working with learners with severe disabilities was clearly not easy or not possible. Most teachers reported that they found that the devices offered much greater flexibility. Most reported benefits were concerned with motivation, engagement and working in 'an adult world'.

Learner Survey 2
Responses were received from learners in 6 schools. Most learners were from secondary schools, and about half were boys and half were girls. Most of the learners found the devices very easy to use. For the majority, the size was right and text and pictures could be read and seen easily; for a few, they were not sure how to use them. Most reported that they really liked the devices, and none said they did not like them. Uses varied, with most use in classrooms, with groups of learners, looking at websites and reading online. Many learners reported that they felt they were benefiting – technically, motivationally, cognitively, socially, and widening how they were learning.

Teacher Survey 2
Responses were received from teachers in 6 schools. Most teachers were from primary schools. The majority used the devices 1-5 times, while one third used them more than this. Most teachers found the devices easy to use. Most teachers enjoyed using the devices, because they added fun and entertainment to the learning. About half of the teachers did not find new ways to use the devices; however, the other half thought the devices helped in collaborative work in classrooms. Most reported benefits were concerned with support for learning and increase of learner socialisation.

Learner Survey 3
Responses were received from learners in 1 school. Most learners were 9-10 years old. More than half of the learners were boys. All learners reported that they found the devices very easy to use. For the majority, the size was right, the text could be read easily and pictures easily seen. Uses varied, with most use for working on a special visit, perhaps to a castle or a museum, taking pictures, creating presentations and reading texts or books online. Many learners felt they were benefiting technically, and widening how they could learn.

Teacher Survey 3
Responses were received from 1 teacher, who taught a 9-10-year-old class. Since completing the last survey, the teacher had used the mobile devices every day. The teacher had found the training to be useful. The teacher used the devices in each subject discipline to create video lessons, cartoons and maps. Since the last survey, the teacher had used the application (app) Imotion for cartoons. The teacher reported that the learners felt more confident and they wanted to deepen understanding of the topics they studied.

Learner Survey 4

Responses were received from learners in 2 schools. Most learners were 10-14 years old. More than half of the learners were boys. Most learners found the devices very easy to use. For the majority, the pictures could be seen easily. Uses varied, with most use reported for working in the classroom and looking at websites that gave information. Many learners felt they were benefiting from the use of mobile devices, especially in spending more time with teachers.

Teacher Survey 4

Responses were received from teachers in 5 schools. Most teachers taught learners around 11 years old. The majority used the devices 5-10 times since the last survey. Teachers described activities where they used mobile devices, related to the six forms of learning activity (Passey, 2010). Activities that strongly relate are highlighted in green in Tables 3 to 8.

"Review and reflect on their learning"	Responses
Students who have participated in the creation of digital lesson learnt well the lesson topics and have deepened it with further research.	2
Building plans and maps; collecting information and media for producing conceptual maps.	2
Making a mental map about decadent movement, after reading and analysing four poems.	1
In "teacher for a day" children prepared the lessons, they were filmed on video. These videos were screened and analysed children seeing their preparation and they noted what to improve.	1
Students created their own draw applying the background and then all the elements of their imagination. After sharing their work with the teacher, they reflected on their collaboration with each other.	1
Students have been working in teams to set up a dossier on South Africa. With these data they have produced a MS PowerPoint file to be shown and discussed together with the rest of the class. Every student had to think about the concepts to explain to the others and to review the way to present it in the MS PowerPoint file.	1
Students used mobile devices during multidisciplinary classes.	1

Table 3: "Review and reflect" activities reported from Survey 4 in Italy

"Think forward about their learning"	Responses
Students have learned to revise and organize thoughts through building schemes, as well as the production of conceptual maps.	3
The use of digital tools and their applications, through searches on the internet, have spurred a greater interest.	2
Making a brainstorming about the second world war, writing the foreknowledge of the learners.	1
Students have used the app simple mind to enhance learning, through concept maps. This made the work easier because it has removed the space difficulty in paper.	1
Students' use of the devices was every day faster and more organised. They will be able to resolve in future complex situations. In discussion in the classroom they reflected that they enjoyed learning and they weren't tired.	1
During the conceptual design and the "review and reflect" phases students had to imagine themselves in the situation they were working for: slide projection and presentation of information, ideas and concepts.	1

Table 4: "Think forward about their learning" activities reported from Survey 4 in Italy

"Listen to explanations they are giving"	Responses
Students adjusted with the help of the teacher the contents and structure of their maps.	2
Working together with classmates in exposition of a mental map about a poem.	1
Created a multimedia lesson with the intent to integrate deaf students through knowledge, participation, understanding and creation. We used the linguistic channel LIS by deaf students, and students of hearing have used the channel lip. The learning was equal, but the explanation was done with the use of LIS for the deaf and hard of hearing people to register.	1
One student recorded with the iPad or tablet; another one who spoke and then we could see it to discuss it together.	1
Students worked with picture and video more and explained all procedures to others. They started a discussion on how to record, save and write comments. They applied the procedures learnt, shared and reflected on their mistakes.	1
During slide shows, attending students attentively listened to their classmates presenting their work and giving explanations.	1

Table 5: "Listen to explanations they are giving" activities reported from Survey 4 in Italy

"Snap and show ideas for others to discuss"	Responses
Class was divided into small groups and worked with different maps, doing detailed research about topics and media.	3
Explaining a lesson about Baudelaire connecting to the Internet looking for new images and metaphorical expressions.	1
Created multimedia lessons and put them on the school website. The primary objective was to make students more autonomous in the study, making the multimedia lessons available.	1
Students explained their ideas before they prepared the video lessons; then they represented it with app simple mind. They did a "brainstorming" and then they created a line-up of video production.	1
Students used mobile devices to snap and show ideas in web forum and through the app Chromecast.	1
The activity of drawing allowed the student to advance their knowledge exploring new applications. The teacher stimulated the student to cooperate with others, showing their ideas and discussing it.	1
Every student, during his presentation, focused on their own ideas and on the most relevant information, according to their own judgement, to be given to the classmates, in order to discuss it all together.	1

Table 6: "Snap and show ideas for others to discuss" activities reported from Survey 4 in Italy

"Show what they've done and discuss how they've done it"	Responses
Students built schemes after studying a subject and so organized thoughts. With the help of the scheme they explained to others the subject studied.	3
Students exposed a mental map about a poem of Ungaretti and explaining how they have chosen and connected the key words.	1
Students have downloaded, through some digital tools, videos and photos, related to the topic of the lesson. Later recorded, audio, text, videos and images related to the previously downloaded and stored on the tablet. Two deaf students have registered, videos, texts read in sign language.	1
When students have learned to use tablets and iPads, they have become mentor of younger children and they taught them a few things: information and image search. Also in a lecture open to the parents they have explained them as they created the video lessons.	1
Students used mobile devices to show what they have done and discuss how they have done it with the support of a slide presentation previously created with mobile applications.	1
Teacher showed and sent device work to all students; they explained what they did; discussed the things that could be added, which includes the use of colour or images created. At the end of the discussion, students gave a vote on their work and teacher encouraged further questions.	1
During group presentations, students listened to their classmates explaining what they had done and how they had done it (search and retrieval of data and info, data and info selection, data and info elaboration and power point production).	1

Table 7: "Show what they've done and discuss how they've done it" activities reported from Survey 4 in Italy

"Let others comment on how to improve what they've done"	Responses
Teachers need more time to look at how useful mobile technologies are when teaching.	2
Students have made a debate from the work done in the various groups and then have reworked everything into a final product.	2
Comparing various mental maps projecting slides on interactive whiteboard (LIM).	1
During teacher week, in turn, the students explained their lessons with the tablet. Then we discussed what could be improved in each lesson.	1
Students' presentations were projected on a wall through a video projector.	1
Students gave advice to their classmates, expressing personal opinions to cooperate towards the change and improve of their work. Teachers stimulated the comparison and looked for new ideas with the students.	1
Every student at the end of the slide show commented the work of his classmates. Some students pointed out aspects that could have been improved (more extended content, better graphics, etc.)	1

Table 8: "Let others comment on how to improve what they've done" activities reported from Survey 4 in Italy

Across these six forms of activity, the teachers described:

- "Review and reflect", 5 activities.

- "Think forward", 0 activities.
- "Listen to my explanations", 5 activities.
- "Snap and show", 3 activities.
- "This is what I've done and how I've done it", 6 activities.
- "Tell me how I could improve this", 4 activities.

Comparisons across the surveys
From across the learner surveys, details of responses are shown in Table 9 following.

Feature	Survey 1	Survey 2	Survey 3	Survey 4
After x months	2	3	5	9
Number of schools	5	6	1	2
School sector	Half primary, half secondary	Most from secondary	Primary	Half primary, half secondary
Gender balance	Half boys, half girls	Half boys, half girls	More than half boys	More than half boys
Ease of use of the devices	9 out of 10 found them easy	Most found them easy	All found them easy to use	Most found them easy
Size of devices	Right for the majority	Right for the majority	Right for the majority	
Reading text	Seen easily by the majority	Seen easily by the majority	Seen easily by the majority	
Reading pictures	Seen easily by the majority	Seen easily by the majority	Seen easily by the majority	Seen easily by the majority
Knowing how to use them	Some not sure how to use them	A few not sure how to use them		
Liking the devices	Most really liked them	Most really liked them		
Uses in classrooms	High levels of use	High levels of use		High levels of use
With groups of learners	High levels of use	High levels of use		
Writing text	High levels of use			
Looking at websites		High levels of use		High levels of use
Reading online		High levels of use	High levels of use	
On a special visit			High levels of use	
Taking pictures			High levels of use	
Creating presentations			High levels of use	
Benefiting technically	Commonly reported	Commonly reported	Commonly reported	
Benefiting motivationally	Commonly reported	Commonly reported		
Benefiting cognitively	Commonly reported	Commonly reported		
Benefiting socially	Commonly reported	Commonly reported		
Widening how they were learning	Commonly reported	Commonly reported	Commonly reported	
Spending more time with teachers				Commonly reported

Table 9: Summary from surveys of learner responses in Italy

Whilst the data in Table 9 above do not come from a consistent sample of schools and pupils, nevertheless from across the population:

- Most pupils found the mobile devices easy to use (about 1 in 10 did not), and they enjoyed using them.
- Text and images on the mobile devices were generally easily read and seen, and the size was felt to be 'right' (see Figure 1 below).

- Some pupils required more support and training in use of the devices than did others.
- The devices were used in classrooms, with groups, as well as individually.
- The devices were used in a wide range of ways, particularly focusing on sharing of work with others, both peers and teachers (see Figure 2 below). The impact of this on learners is demonstrated by their responses which indicate more time spent with teachers, and increased enjoyment of school (see Figure 3 below).
- Benefits from using the devices were identified by the learners across the period of the survey – up to 9 months from the start of the project.

Figure 1: Learner responses to ease of use in Italy

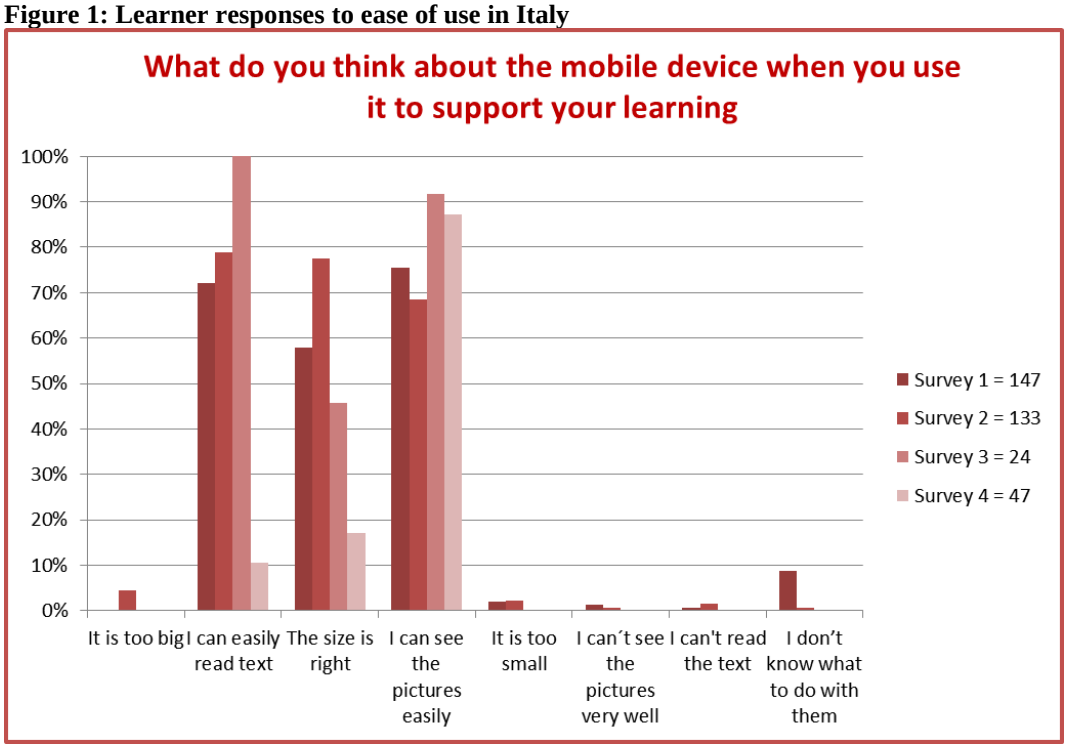


Figure 2: Learner responses to how devices have been used in Italy

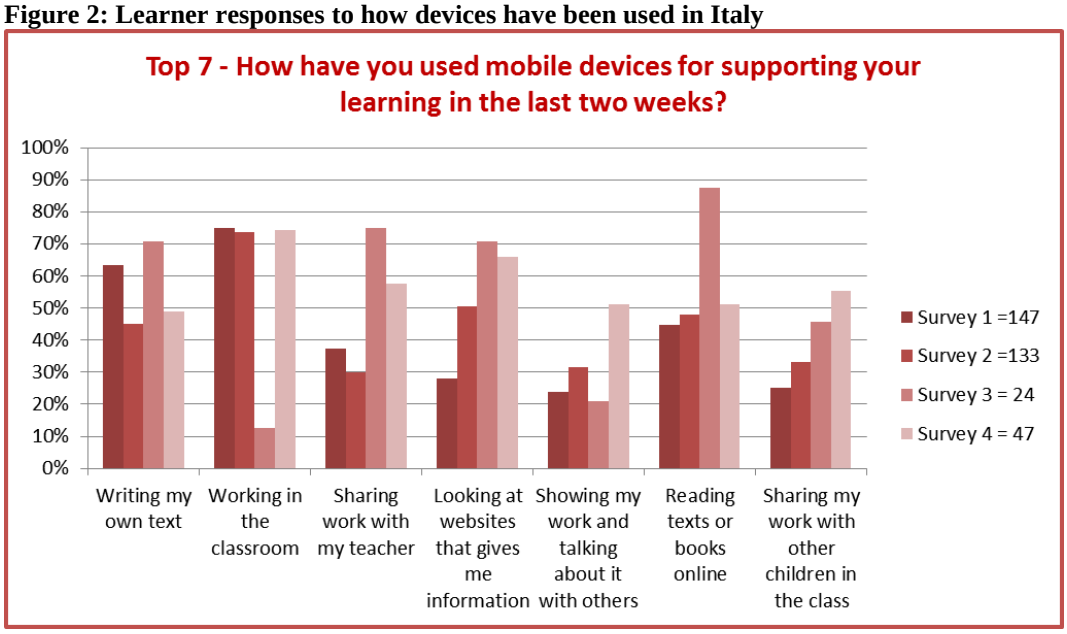
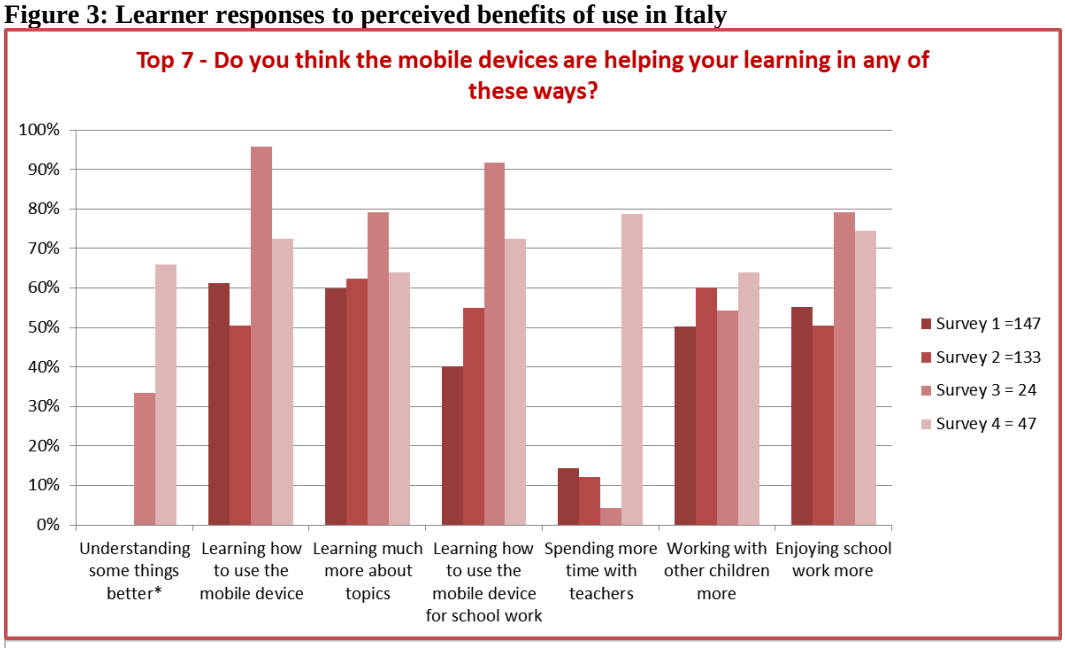


Figure 3: Learner responses to perceived benefits of use in Italy



* Response available only in surveys 3 and 4

From across the teacher surveys, details of responses are shown in Table 10 following.

Feature	Survey 1	Survey 2	Survey 3	Survey 4
After x months	2	3	5	9
Number of schools	6	6	1	5
School sector	One quarter primary, and three quarters secondary	Most primary	Primary	Most primary
Use since the previous survey	Half used them 1-5 times, a quarter used them more	Majority used them 1-5 times, one third more than this	Every day	Most used them 5-10 times
Ease of use	Half found them easy to use, but a quarter not	Most found them easy to use		
Enjoyment of use	Most enjoyed using them, but not those working with learners with severe disabilities	Most enjoyed using them		
Training was helpful			Yes	
Create video lessons			Reported use	
Create cartoons and maps			Reported use	
Help collaborative work		Reported by half of the teachers		
Benefit flexibility	Most reported this			
Benefit motivation	Reported commonly			
Benefit engagement	Reported commonly			
Benefit working in an 'adult world'	Reported commonly			
Benefit learner socialisation		Reported commonly		
Benefit confidence			Reported benefit	
Benefit deepening of topic knowledge			Reported benefit	

Table 10: Summary from surveys of teacher responses in Italy

Whilst the data in Table 10 do not come from a consistent sample of schools and teachers, nevertheless from across the population:

- The devices were used regularly by teachers, about once a week on average.
- Most reported positively on ease of use and enjoyment.
- Common uses reported included collaborative work, and creation of videos and cartoons.
- In terms of types of activities, teachers reported "Review and reflect" (5), "Think forward" (0), "Listen to my explanations" (5), "Snap and show" (3), "This is what I've done and how I've done it" (6), and "Tell me how I could improve this" (4).
- Benefits were reported across the period of the project (9 months from the start), including positive benefits on engagement, motivation, confidence, deepening of topic knowledge, socialisation, flexibility, and working in 'an adult world'. The importance of the latter two was stressed particularly by teachers.

6. FINDINGS FROM GREECE

Learner Survey 1
Responses were received from learners in 2 schools. More than half were from a kindergarten and the others were from a secondary vocational school; about two-thirds were girls. About 1 in 100 learners did not find the devices easy to use. But, for the majority, the size was right and text and pictures could be read and seen easily. Most reported that they liked using the devices, but a few said they did not like them. Uses varied, but most commonly they were used for taking pictures, recording video, looking at websites, and sharing with others. Many learners felt they were benefiting – technically, cognitively, socially, and widening how they were learning.

Teacher Survey 1
Responses were received from teachers in 2 schools. Most were from a secondary vocational school. About one-third used the devices 1-5 times, but about two-thirds used them more than this. Some found the devices easy to use, but others did not (for logistical or legislative reasons). Most reported that they enjoyed using them. Most found that the devices offered flexibility. Most reported benefits concerned with engagement and independent working.

Learner Survey 2
Responses were received from learners in 8 schools. Most learners were 16-18 years old. About two-thirds of learners were boys. About 3 in 100 learners did not find the devices easy to use. For the majority, the size was right and text and pictures could be read and seen easily. Most liked using the devices, but a few said they did not like them. Uses varied, but most commonly they were used for taking pictures, recording video, looking at websites, and reading text online. Many learners felt they were benefiting – technically, cognitively, socially, and widening how they were learning.

Teacher Survey 2
Responses were received from teachers in 5 schools. The majority of teachers used the devices 10-20 times, while one third used them more than this. Most teachers found the devices not that easy to use in the class, due to the restrictions of the Greek legal framework. Most teachers enjoyed using the mobile devices in the class. More than half of the teachers found new ways to use the mobile devices, particularly in the interdisciplinary planning of lessons together with other teachers. Most teachers reported benefits concerned with the inclusion of multimedia content in the students' notes.

Learner Survey 3
Responses were received from learners in 4 schools. Most learners were 15-16 years old. More than half of the learners were girls. Most learners found the devices very easy to use. For the majority, the size was right and text and pictures could be read and seen easily. Uses varied, but most commonly they were used for taking pictures, recording video, looking at websites, and making notes somewhere outside school. Many learners felt they were widening how they learned.

Teacher Survey 3
Responses were received from teachers in 7 schools. Most teachers taught learners between 16 and 23 years of age. Most teachers found the training in the use of the mobile devices very useful. The most useful parts of the training were to better understand their use and to practice specific apps for teaching. Most teachers used the devices for multimedia functions and for designing interdisciplinary lesson plans. More than half of the teachers since the last survey found other ways to use the devices, particularly in creating lesson plans and in learners' creating their own stories. Most teachers reported benefits concerned with learning becoming more interactive and enjoyable, without limitations of time and place for learners.

Learner Survey 4
Responses were received from learners in 3 schools. Most learners were 16 years old. More than half of the learners were girls. Most learners enjoyed very much the use of the devices to support their learning. For the majority, the pictures could be seen easily. Uses varied, but most commonly they

were used for taking pictures and sharing work with other children in the class. Many learners felt they were widening their learning of new technical skills.

Teacher Survey 4

Responses were received from teachers in 2 schools. Most teachers taught learners between 4 and 7 years of age. Since the last survey, the majority used the devices between 10 times and every day. Teachers described activities where they used mobile devices, related to the six forms of learning activity. Activities that are strongly related are highlighted in green in Tables 11 to 16.

"Review and reflect on their learning"	Responses
Students used the camera almost daily in the imprinting of their activities (photos, video). They had the ability to upload various materials on a blog. This provided the opportunity for review and revision of learning since students enter at any time on the site and choose.	1
By creating two quizzes with the help of the application Quizlet provided an opportunity for students to bring back the memory of what they had learned during the activities developed in the Project.	1

Table 11: "Review and reflect" activities reported from Survey 4 in Greece

"Think forward about their learning"	Responses
Rich visual material (which is usually sought from the internet). Students' own records (usually photographic) and correlating events were an opportunity to draw conclusions, so that the knowledge is built gradually.	1
Through completing the quiz KETHEA students had the opportunity to choose based on their own capabilities in a way that would complete the quiz.	1

Table 12: "Think forward about their learning" activities reported from Survey 4 in Greece

"Listen to explanations they are giving"	Responses
The materials associated with the use of mobile devices reinforced positive interactions between children, their speaking, collaboration, organization and processing of information.	1
Students developed a corresponding activity.	1

Table 13: "Listen to explanations they are giving" activities reported from Survey 4 in Greece

"Snap and show ideas for others to discuss"	Responses
The age of the student requires guidance in organizing and presenting the results of their investigations. This is usually done in groups with questions that help them capture the information and assist with the visual materials.	1
Students took pictures of their creations and then passed it on to a laptop computer to create two videos and a digital interactive poster.	1

Table 14: "Snap and show ideas for others to discuss" activities reported from Survey 4 in Greece

"Show what they've done and discuss how they've done it"	Responses
Materials were post on the kindergarten's blog to enhance the possibility of autonomy of young children to navigate the blog by choosing each topic or material of interest, whenever and as many times as they wanted. These materials supported the feedback of educational practice, information search and information and involvement of parents in the process.	1
Students then presented in the plenary the order of their creations.	1

Table 15: "Show what they've done and discuss how they've done it" activities reported from Survey 4 in Greece

"Let others comment on how to improve what they've done"	Responses
The infancy requires gradual guidance, practical training and familiarity with the use of portable devices. Furthermore infants have the ability to learn very easily and the use of technologies is highly attracted.	1
The activities developed during the Project were based on experiential learning, group cooperation, teaching and active participation of students in all phases of the Project.	1

Table 16: "Let others comment on how to improve what they've done" activities reported from Survey 4 in Greece

Across these six forms of activity, the teachers described:

- "Review and reflect", 2 activities.
- "Think forward", 0 activities.
- "Listen to my explanations", 1 activity.
- "Snap and show", 0 activities.
- "This is what I've done and how I've done it", 0 activities.
- "Tell me how I could improve this", 0 activities.

Learner Survey 5

Responses were received from learners in 1 school. Most learners in the age group were around 17 years of age. More than half of the learners were boys. More than half of the learners enjoyed very much the use of the mobile devices to support their learning. The majority used the mobile devices one or two times at home and a few times in school. Uses varied, but most commonly they were used for looking at websites that gave information. Many learners felt they were learning new technical skills and finding out more information about certain topics.

Teacher Survey 5

Responses were received from teachers in 2 schools. Most teachers taught learners between 16 and 22 years of age. Since the last survey the majority of teachers used the devices on two occasions. Teachers described activities where they used mobile devices, related to the six forms of learning activity. Activities strongly related are shown in green in Tables 17 to 22.

"Review and reflect on their learning"	Responses
I used Quizlet to create a test where the students could spot their mistakes and correct them.	4
Created tests and activities for feedback and then reward.	2
Through e-quizzes students can be self-assessed by using their mobile devices for their final exams.	1
Students were empowered to review and reflect on their learning with end of the school year self-assessment quizzes.	1

Table 17: "Review and reflect" activities reported from Survey 5 in Greece

"Think forward about their learning"	Responses
In Geometry, with the use of Geogebra, I visualized theoretical concepts into geometrical schemes.	2
Students had the opportunity to choose from various apps what suits them better, always in relevance to the course.	2
Students took photos of electrical devices at their home and they calculated consumption per hour.	1
In science class students were empowered to re-implement the experiments and take videos or photos for revision.	1
With Evernote students took photos of the board which contained notes from the revision courses in order to read them again at home.	1
With the help of Simulator students reconstructed the route of packets during communication between adjacent nodes.	1

Table 18: "Think forward about their learning" activities reported from Survey 5 in Greece

"Listen to explanations they are giving"	Responses
During the team activity, we tried to improve and correct students' oral responses.	2
I used some apps (like Socrative or Moodle) which, after the presentation and solution of questions and comments of the group in the classroom, were used for activities on the relevant subject. The result was the instant feedback and reward of the effort of students.	2
I encouraged students to use apps for video recording from their mobile devices during the revision weeks.	1
Students were empowered to make peer-to-peer revision by recording the more difficult exercises for them and the proposed answer, listening and sharing with peers for cross-checking.	1
We connected our mobile devices to the projector in order to project the students' responses.	1

Table 19: "Listen to explanations they are giving" activities reported from Survey 5 in Greece

"Snap and show ideas for others to discuss"	Responses
By using their mobile devices, students share their ideas with their classmates, working from home, with the use of Skype. They worked together and they exchanged opinions.	2
Sharing of files between teacher and students.	2
Students use their mobile devices to study from distance with their classmates and to alternate the roles "teacher-student" in order to prepare for the final exams.	1
Students were assigned to navigate through the internet to find literature on the subject of the course and to publish their findings in the school's website.	1
Students used internet, the app "photos" and skype.	1

Table 20: "Snap and show ideas for others to discuss" activities reported from Survey 5 in Greece

"Show what they've done and discuss how they've done it"	Responses
With the use of Movie Maker, students recorded an activity and then edited the video adding suitable explanations.	3
The activities relevant to presentation and sharing of assignments happened during the 4th MLEARN Survey.	2
Presentation through apps on the tablet and video editing, involving the projector.	1
Students presented their projects with the help of mobile devices and video projector of the lab.	1

Table 21: "Show what they've done and discuss how they've done it" activities reported from Survey 5 in Greece

"Let others comment on how to improve what they've done"	Responses
Students created a blog where they uploaded their projects and took comments from classmates.	2
Suggestion for the use of uploading platforms such as Slideshare.	2
It was difficult to encourage students during written comments to improve their projects. They preferred oral comments.	1
Students were encouraged to seek for their classmates' opinion which would help them improve their final outcome.	1
Students made a personal website, they uploaded material and asked the users to add comments and likes.	1

Table 22: "Let others comment on how to improve what they've done" activities reported from Survey 5 in Greece

Across these six forms of activity, the teachers described:

- "Review and reflect", 4 activities.
- "Think forward", 1 activity.
- "Listen to my explanations", 3 activities.
- "Snap and show", 4 activities.
- "This is what I've done and how I've done it", 4 activities.
- "Tell me how I could improve this", 4 activities.

Looking across the surveys

From across the learner surveys, details of responses are shown in Table 23 following.

Feature	Survey 1	Survey 2	Survey 3	Survey 4	Survey 5
After x months	2	3	5	9	13
Number of schools	2	8	4	3	1
School sector	More than half from a kindergarten, the others from secondary school	Secondary	Most secondary	Most secondary	Secondary
Gender balance	Two-thirds girls	Two-thirds boys	More than half girls	More than half girls	More than half boys
Ease of use of the devices	1 in 100 did not find them easy	3 in 100 did not find them easy	Most found them easy to use		
Size of devices	Right for the majority	Right for the majority	Right for the majority		
Reading text	Easily seen for the majority	Easily seen for the majority	Easily seen for the majority		
Reading pictures	Easily seen for the majority	Easily seen for the majority	Easily seen for the majority	Easily seen for the majority	
Liking the devices	Most liked using them	Most liked using them			
Writing text					
Looking at websites	Commonly reported	Commonly reported	Commonly reported		Commonly reported
Reading online		Commonly reported			
Notes outside school			Commonly reported		
Taking pictures	Commonly reported	Commonly reported	Commonly reported	Commonly reported	
Recording video	Commonly reported	Commonly reported	Commonly reported		
Sharing with others	Commonly reported			Commonly reported	
Benefiting technically	Commonly reported	Commonly reported		Commonly reported	Commonly reported
Benefiting cognitively	Commonly reported	Commonly reported			Commonly reported
Benefiting socially	Commonly reported	Commonly reported			
Widening how they were learning	Commonly reported	Commonly reported	Commonly reported	Commonly reported	

Table 23: Summary from surveys of learner responses in Greece

Whilst the data in the table above do not come from a consistent sample of schools and pupils, nevertheless from across the population:

- Most pupils found the mobile devices easy to use (about 1 in 100 did not).
- Text and images on the mobile devices were generally easily read and seen, and the size was felt to be 'right'.
- The devices were used outside classrooms (due to legislation adherence requirements), by groups, as well as individually.
- The devices were used in a wide range of ways, particularly focusing on sharing of work with others, taking notes outside school, taking pictures, and recording videos (see Figure 4 below). The impact of these uses on learners is demonstrated by their responses, which indicate they spend

more time doing school work, thinking about their work more, and finding out more about subject topics (see Figure 5 below).

- Benefits from using the devices were identified by the learners across the period of the survey – up to 13 months from the start of the project.

Figure 4: Learner responses to how devices have been used in Greece

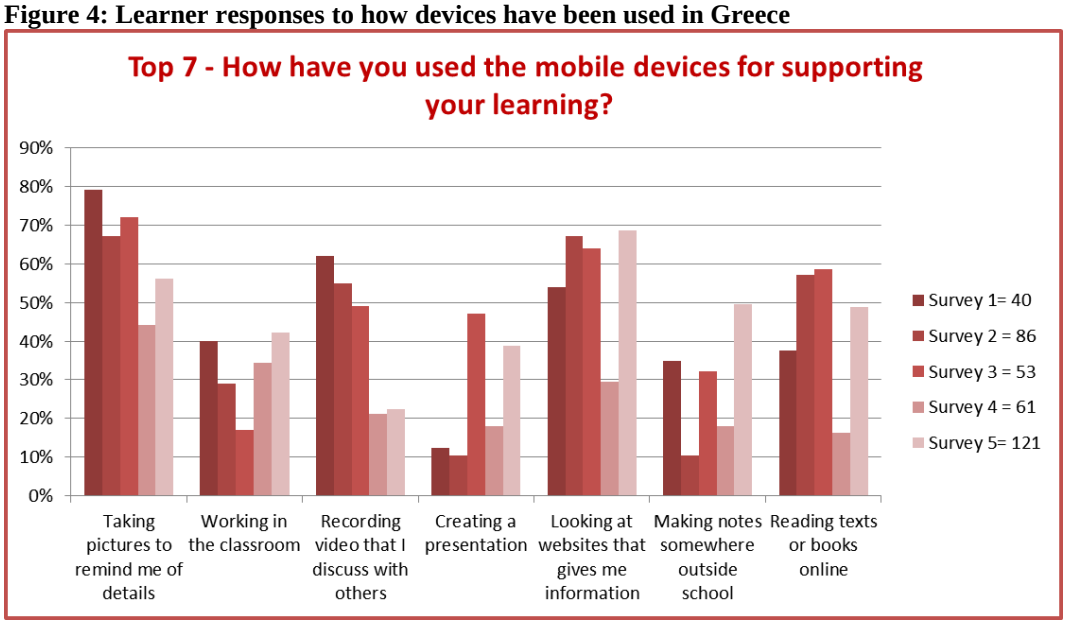
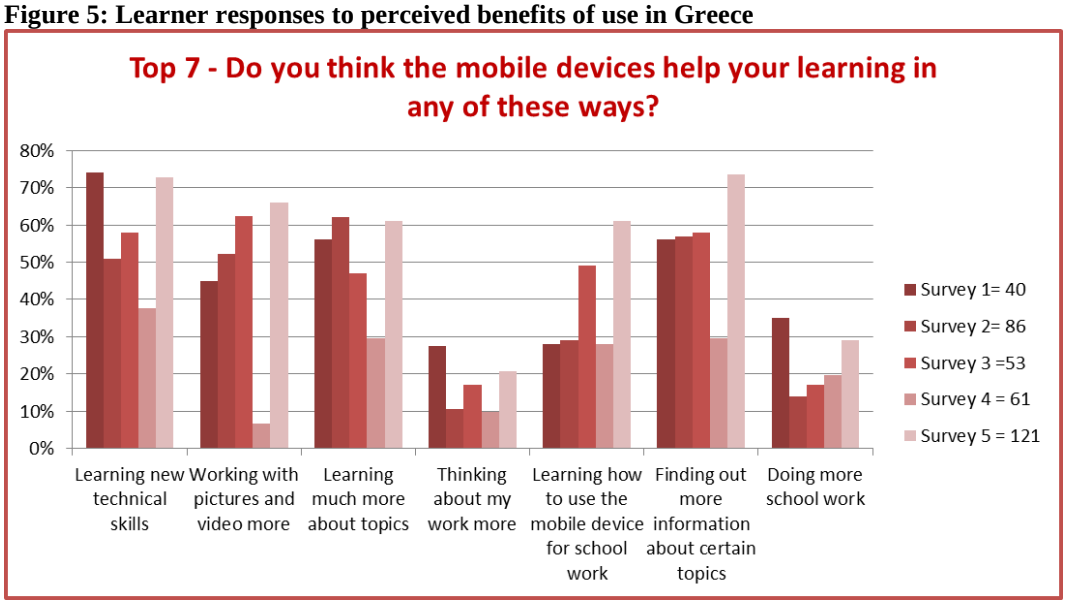


Figure 5: Learner responses to perceived benefits of use in Greece



From across the teacher surveys, details of responses are shown in Table 24 following.

Feature	Survey 1	Survey 2	Survey 3	Survey 4	Survey 5
After x months	2	3	5	9	13
Number of schools	2	5	7	2	2
School sector	Most from secondary vocational		Mostly secondary vocational	Mostly primary	Mostly secondary vocational
Use since the previous survey	One-third 1-5 times, but the others more	Most 10-20 times, others more		Majority use 10 times or every day	Majority use 2 times
Ease of use	Some found them easy to use	Most found them not that easy due to legislation			
Enjoyment of use	Most were positive	Most were positive			
Training was helpful			Most reported positively		
Interdisciplinary lesson planning		Reported by many	Reported by many		
Benefit flexibility	Reported by many				
Benefit motivation			Commonly reported		
Benefit engagement	Commonly reported				
Benefit independent learning	Commonly reported				
Benefit multimedia content in notes		Commonly reported			
Benefit interactive learning			Commonly reported		
Benefit removal of time and place limits			Commonly reported		

Table 24: Summary from surveys of teacher responses in Greece

Whilst the data in Table 24 do not come from a consistent sample of schools and teachers, nevertheless from across the population:

- The devices were used regularly by teachers, at least once a week on average.
- Most reported positively on ease of use and enjoyment.
- Common uses reported included interdisciplinary work and planning.
- In terms of types of activities, teachers reported "Review and reflect" (6), "Think forward" (1), "Listen to my explanations" (4), "Snap and show" (4), "This is what I've done and how I've done it" (4), and "Tell me how I could improve this" (4).
- Benefits were reported across the period of the project (13 months from the start), including positive benefits on engagement, motivation, independent learning, interactive learning, flexibility, and removal of limits on learning in terms of time and place. The importance of the latter four was stressed particularly by teachers.

7. FINDINGS FROM THE NETHERLANDS

Teacher Survey 1
Responses were received from 5 teachers in one school. The teachers taught classes aged 5-6, 7-9 and 9-11 years of age. Most teachers used the mobile devices 2-3 times a week, but others used them more than this (up to 18-20 times). Most teachers reported that they found it easy to use the devices in class; however, one teacher reported that the number of tablets was insufficient and that this caused some distraction amongst the learners. Most teachers really enjoyed using them; only one teacher felt the need for more experience when handling the tablets. Most teachers reported that they felt the mobile devices supported learning, with one making reference to the possibility of learning according to the learners' level, and another stated that there was no limitation to learning at more advanced levels, as can happen with textbooks. All teachers reported that they found benefits in using the devices; half of them referred to engagement and faster learning; the other half pointed to the challenges of constantly learning according to the learners' levels, not being restricted by groups of assignments, and issues of supporting positive social behaviour and independence of learning.

Teacher Survey 2
Responses were received from teachers in 1 school. Half of them used the devices 1-5 times, while the other half used the devices more than 20 times. Most teachers found the devices easy to use. Most teachers enjoyed using the devices, because the children were motivated and excited to learn. More than half of the teachers did not find new ways to use the devices; however, the other half thought the devices helped in making the learning fun. Most reported benefits concerned with supporting learning and increase of learner differentiation.

Learner Survey 3
Responses were received from learners in 1 school. Most learners were 11 years of age. More than half of the learners were boys. Most learners found the devices very easy to use. For the majority, the size was right and text could be easily read. Uses varied, but most commonly they were used for working on their own, working in the classroom and creating a presentation. Many learners felt they were widening how they learned.

Teacher Survey 3
Responses were received from teachers in 1 school. Most teachers taught learners between 10 and 12 years of age. Most teachers found the training in the use of the mobile devices very useful. However, some of them reported that they had not had any training, only an explanation of how to use the devices. Most teachers used the devices with mathematics and language programs. Since the last survey, most teachers did not find any other ways to use the devices. Most teachers reported benefits concerned with learning becoming more independent and learners having the capacity to work at their own level – customised learning.

Learner Survey 4
Responses were received from learners in 1 school. Most learners were 10-11 years of age. More than half of the learners were boys. Most learners very much enjoyed using the mobile device to support their learning. For the majority, the size was right and pictures could be easily seen. Uses varied, but most commonly they were used for working in the classroom and looking at websites that gave information. Many learners felt they were widening how they learned by using the mobile device for school work.

Teacher Survey 4
Responses were received from teachers in 1 school. Most teachers taught learners between 5 and 9 years of age. Since the last survey, half of the teachers used the devices 1-10 times and the other half more than 10 times. Teachers described activities where they used mobile devices, related to the six forms of learning activity. Activities strongly related are highlighted in green in Tables 25 to 30.

"Review and reflect on their learning"	Responses
They work in a program called "rekentuin taalzee". Here they practiced math, the way of writing the words and geography.	2
The teachers made a quiz and the children had to answer the questions.	1
They grow in using the iPad. They don't have as many questionnaires as before. They turn on the programme and every student is very concentrated with their work. Very focused!	1

Table 25: "Review and reflect" activities reported from Survey 4 in the Netherlands

"Think forward about their learning"	Responses
It is very easy to see the students who need help. Then they can be challenged better.	1
It also prepared students for their next school.	1
Students like to use the iPads, because there is a reward.	1

Table 26: "Think forward about their learning" activities reported from Survey 4 in the Netherlands

"Listen to explanations they are giving"	Responses
Students explain to the other peers what they learn on the iPad.	2
Teachers made presentations on the iPads to explain a project conducted.	1
The rewards really matter to the students.	1

Table 27: "Listen to explanations they are giving" activities reported from Survey 4 in the Netherlands

"Snap and show ideas for others to discuss"	Responses
Teachers did not to lock the devices with password.	1

Table 28: "Snap and show ideas for others to discuss" activities reported from Survey 4 in the Netherlands

"Show what they've done and discuss how they've done it"	Responses
Most students do ' trial and error' to get the solution.	1
Teachers discussed some matters with students privately but not in the class.	1

Table 29: "Show what they've done and discuss how they've done it" activities reported from Survey 4 in the Netherlands

"Let others comment on how to improve what they've done"	Responses
Students show to others what they have done and talked about how to work better on iPads. It is a great way to teach.	1

Table 30: "Let others comment on how to improve what they've done" activities reported from Survey 4 in the Netherlands

Across these six forms of activity, the teachers described:

- "Review and reflect", 2 activities.
- "Think forward", 1 activity.
- "Listen to my explanations", 1 activity.
- "Snap and show", 0 activities.
- "This is what I've done and how I've done it", 0 activities.
- "Tell me how I could improve this", 1 activity.

Teacher Survey 5

Responses were received from teachers in 1 school. Most teachers taught learners between 10 and 11 years of age. Since the last survey, half of the teachers used the devices 1-10 times and one quarter more than 10 times. Teachers described activities where they used mobile devices, related to the six forms of learning activity. Activities strongly related are highlighted in green in Tables 31 to 36.

"Review and reflect on their learning"	Responses
Students learn alphabet letters on a very friendly way.	1
Students made their first history test on the iPad (Blink). Directly after the test they saw their correct answers and got their score.	1
In using the mobile devices for maths it can be seen what students have done. I can tell students what to do next or change the program.	1
When students do the test, they immediately get the results.	1

Table 31: "Review and reflect" activities reported from Survey 5 in the Netherlands

"Think forward about their learning"	Responses
I did not use the mobile device for this goal yet.	1
I can change the program for every student separately with the math program.	1

Table 32: "Think forward about their learning" activities reported from Survey 5 in the Netherlands

"Listen to explanations they are giving"	Responses
Students explored a website that explained the meaning of festivities days. They got questions on paper and searched for the answers online through the iPad.	1
The explanations are very clear. It saved time.	1

Table 33: "Listen to explanations they are giving" activities reported from Survey 5 in the Netherlands

"Snap and show ideas for others to discuss"	Responses
I did not use mobile devices for this goal yet.	1

Table 34: "Snap and show ideas for others to discuss" activities reported from Survey 5 in the Netherlands

"Show what they've done and discuss how they've done it"	Responses
I did not use mobile devices for this goal yet.	1

Table 35: "Show what they've done and discuss how they've done it" activities reported from Survey 5 in the Netherlands

"Let others comment on how to improve what they've done	Responses
I did not use mobile devices for this goal yet.	1

Table 36: "Let others comment on how to improve what they've done" activities reported from Survey 5 in the Netherlands

Across these six forms of activity, the teachers described:

- "Review and reflect", 4 activities.
- "Think forward", 0 activities.
- "Listen to my explanations", 0 activities.
- "Snap and show", 0 activities.

- "This is what I've done and how I've done it", 0 activities.
- "Tell me how I could improve this", 0 activities.

Looking across the surveys

From across the learner surveys, details of responses are shown in Table 37 following.

Feature	Survey 3	Survey 4
After x months	5	9
Number of schools	1	1
School sector	Primary	Primary
Gender balance	More than half boys	More than half boys
Ease of use of the devices	Most found them easy to use	
Size of devices	Right for the majority	Right for the majority
Reading text	Easily read by the majority	
Reading pictures		Easily seen by the majority
Uses in classrooms	Commonly reported	Commonly reported
Working on their own	Commonly reported	
Looking at websites		Commonly reported
Creating presentations	Commonly reported	
Widening how they were learning	Commonly reported	Commonly reported

Table 37: Summary from surveys of learner responses in the Netherlands

Whilst the data in Table 37 do not come from a consistent sample of pupils, nevertheless from across the population:

- Most pupils found the mobile devices easy to use.
- Text and images on the mobile devices were generally easily read and seen, and the size was felt to be 'right' (see Figure 6 below).
- The devices were used in classrooms, with groups, as well as individually.
- The devices were used in a wide range of ways, particularly focusing on sharing of work with others, both peers and teachers (see Figure 7 below). The impact of this on learners is demonstrated by their responses, which indicate increased enjoyment with school, doing more school work and understanding things better (see Figure 8 below).
- Benefits from using the devices were identified by the learners across the period of the survey – up to 9 months from the start of the project.

Figure 6: Learner responses to ease of use in the Netherlands

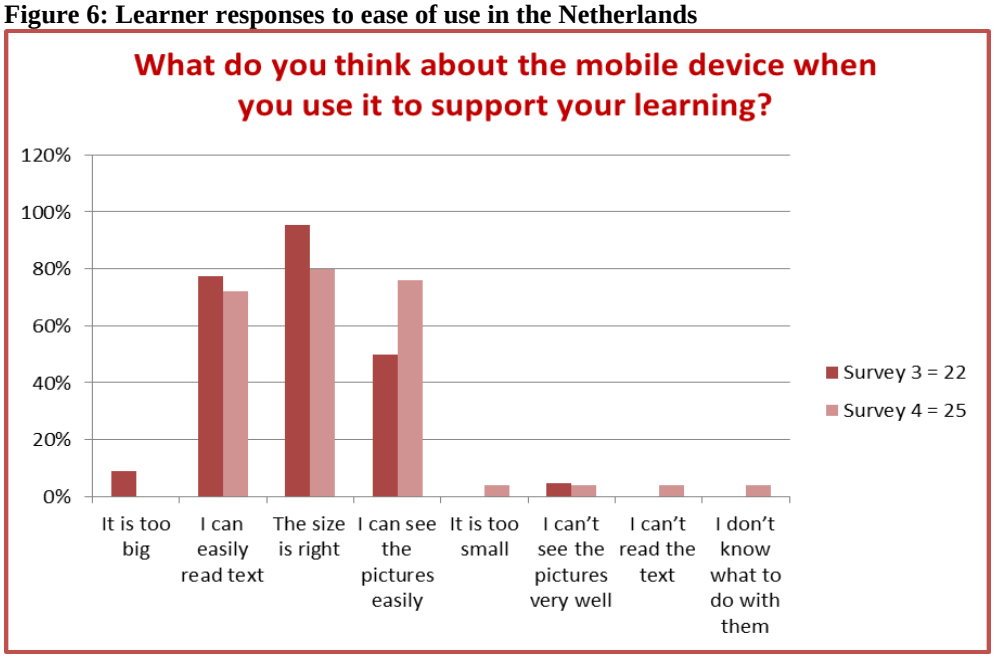


Figure 7: Learner responses to how devices have been used in the Netherlands

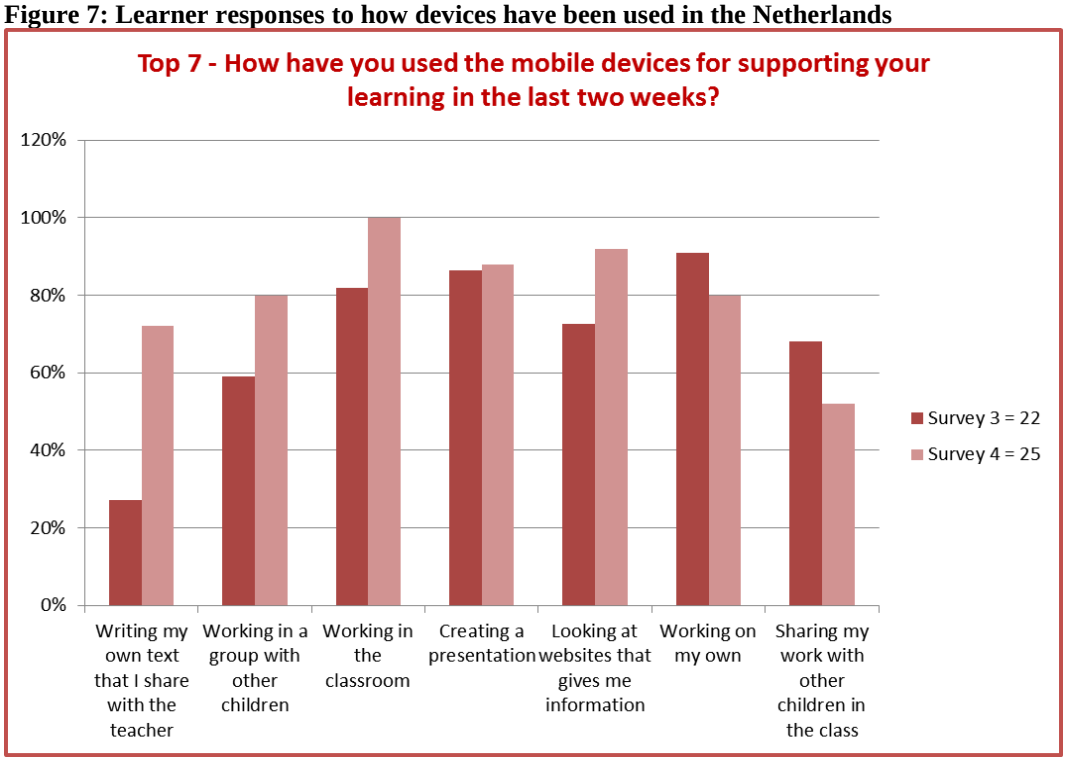
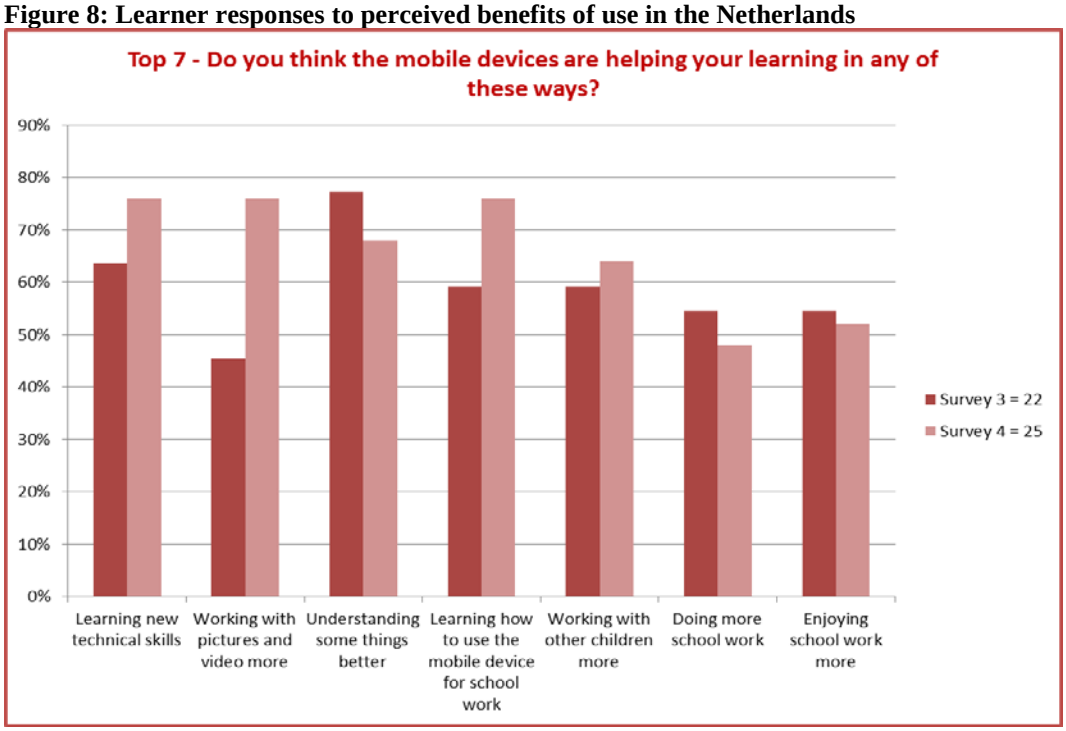


Figure 8: Learner responses to perceived benefits of use in the Netherlands



From across the teacher surveys, details of responses are shown in Table 38 following.

Feature	Survey 1	Survey 2	Survey 3	Survey 4	Survey 5
After x months	2	3	5	9	13
Number of schools	1	1	1	1	1
School sector	Primary	Primary	Primary	Primary	Primary
Use since the previous survey	Most 2-13 times a week, others up to 18-20 times	Half 1-5 times, others more than 20 times		Half 1-10 times, others more than 10 times	Half 1-10 times, some more than 10 times
Ease of use	Most found them easy to use	Most found them easy to use			
Enjoyment of use	Mostly positive	Mostly positive			
Training was helpful			Positively reported		
Help accommodate learner levels	Positively reported				
Does not prevent limits to learning	Positively reported				
Benefit flexibility	Commonly reported	Commonly reported			
Benefit motivation		Commonly reported			
Benefit engagement	Commonly reported				
Benefit faster learning	Commonly reported				
Benefit learner socialisation	Commonly reported				
Benefit independent learning	Commonly reported		Commonly reported		
Benefit customised learning			Commonly reported		

Table 38: Summary from surveys of teacher responses in the Netherlands

Whilst the data in Table 38 do not come from a consistent sample of teachers, nevertheless from across the population:

- The devices were used regularly by teachers, about once a week on average.
- Most reported positively on ease of use and enjoyment.
- In terms of types of activities, teachers reported “Review and reflect” (6), “Think forward” (1), “Listen to my explanations” (1), “Snap and show” (0), “This is what I’ve done and how I’ve done it” (0), and “Tell me how I could improve this” (1).
- Benefits were reported across the period of the project (13 months from the start), including positive benefits on engagement, motivation, socialisation, accommodating learner levels, not limiting learning, flexibility, faster learning, independent learning, and customised learning. The importance of the latter six was stressed particularly by teachers.

8. FINDINGS FROM THE UNITED KINGDOM (ENGLAND)

Learner Survey 1
Responses were received from learners in 6 schools. About two-thirds were from primary schools and one-third from secondary schools, and about three-fifths were boys. About 1 in 10 learners did not find the devices easy to use. Many reported the size was right, but fewer that text and pictures could be read and seen easily; for some, they were not sure how to use them. About half liked the devices, but a few said they did not like them. Uses varied, but most commonly they were used in classrooms, on their own, or with groups of learners, looking at websites and recording video or taking pictures. Some learners felt they were benefiting – technically, cognitively, socially, and widening how they were learning.

Teacher Survey 1
Responses were received from teachers in 4 schools. About half were from primary schools and half from secondary schools. About half used the devices 1-5 times, but about one-quarter used them more than this. About one-quarter found the devices easy to use, but about half did not (for technical and contextual reasons, and lack of familiarity and understanding). Most enjoyed using them. Most found the devices offered greater mobility and interaction. Most reported benefits concerned with engagement and independent learning.

Learner Survey 2
Responses were received from 4 learners in one school, aged 16-17 years, and all boys. Most learners found the devices very easy to use; one learner found it easy sometimes. They reported that the device' size was right and they could easily read text and see pictures on it. Most learners very much enjoyed using them; one learner only enjoyed it sometimes. They used them mainly for taking pictures, reading text online, working in the classroom, looking at websites and writing on their own. Most learners felt they were benefiting, especially in learning much more about topics, doing more school work and finding out more information about topics.

Teacher Survey 2
Responses were received from 1 teacher, who taught classes 6-11 years of age. Since the last survey, the teacher used the devices at least 2-3 times a week. The teacher reported that it had definitely been relatively easy to incorporate the iPads into lessons, and that it was then something that the children expected. The teacher reported that it was nice to see the children becoming independent in their learning. The teacher usually asked one or two questions to set them off and then they 'just got on with it'. The teacher said that the children had been using the iPads to research information, for example, visual clues, rather than an adult talking to the learner about something he had no idea about. The teacher has also used the iPads to record children's performances. The teacher was able to incorporate iPads into most of the topic lessons; this allowed the children to become independent in their learning.

Learner Survey 3
Responses were received from learners in 6 schools. Most learners were 8-10 years of age. More than half of the learners were boys. Most learners found the devices very easy to use. For the majority, the size was right and text could be read easily. Uses varied, but most commonly they were used for taking pictures, working in groups, looking at websites, and creating presentations. Many learners felt they were benefiting technically, and widening how they learned, especially through the use of devices for school work

Teacher Survey 3
Responses were received from teachers in 11 schools. Most teachers taught learners between 9 and 16 years of age. Since the last survey, the majority used the devices 5-10 times. Most teachers found the training in the use of the mobile devices very useful. The most useful parts of the training reported were to explore the use of presentation apps and to link all devices to share resources. Most teachers used the devices for research, collaborative learning, recording, sharing and publishing learners' work.

More than half of the teachers found others ways to use the devices since the last survey, particularly in sharing children's work with other people, as well as in improving the quality of feedback. Most teachers reported benefits concerned with learners' enthusiasm for learning and their capacity to learn independently.

Learner Survey 4

Responses were received from learners in 2 schools. Most learners were around 16 years of age. More than half of the learners were boys. Half of the learners very much enjoyed the use of the mobile devices to support their learning; whilst the other half enjoyed it only sometimes. For the majority, the size was right and pictures could be seen easily. Uses varied, but most commonly they were used for writing texts that they shared with teachers. Many learners felt they are understanding things better, as well as enjoying the school more.

Teacher Survey 4

Responses were received from teachers in 3 schools. Most teachers taught learners between 10 and 12 years of age. Since the last survey, the majority used the devices 1-5 times. Teachers described activities where they used mobile devices, related to the six forms of learning activity. Activities strongly related are highlighted in green in Tables 39 to 44.

"Review and reflect on their learning"	Responses
Students used the iPads as an aid of giving and receiving feedback. They used the coach's eye application to film each other's technique in Cricket. They used the iPads to reflect on their learning as they were giving feedback to a peer as well as the peer then being able to reflect on their own learning and what they might need to improve.	3
Students took pictures of their work and annotated.	2
Students had easy access to revision apps and it worked very well.	2
Students produced a video of their spotting performance based on the assessment criteria. They were asked to make a judgment as to how well they performed.	2
Students appear focused in using Lexia Reading Programme and respond well to the software. Students have got into a good routine and the distractions with getting software set up and ready are smaller now. Students understood the expectations and adhered to them.	1

Table 39: "Review and reflect" activities reported from Survey 4 in England

"Think forward about their learning"	Responses
Use of different apps to help students organise their revision notes i.e flash cards; engaged pupils into recording themselves and creating podcasts.	3
Continue to use the iPads to support student learning.	2
"I don't think students think about the technology in terms of how it will impact their learning in the future".	1
Teacher showed the students clips from previous visits and what they photographed.	1
Students mind map their work in an organised manner to form the structure for their evaluations.	1
Students have made a judgment about their performance; they were required to produce to improve it. A judgment was then made about any further improvements.	1

Table 40: "Think forward about their learning" activities reported from Survey 4 in England

"Listen to explanations they are giving"	Responses
Students did role play presentations through iMovie; they were able to teach contents to other members of the class, but also reflect back on their own learning.	2
Students had to observe their practical spots performances and described it explaining how they performed a specific skill.	2
The Lexia Reading programme required headphones for students to listen to differentiated questions and tasks independently - the tablets were ideal for this.	1
As the students were using coach's eye, they were able to listen to explanation of teaching points through the video. Therefore, students then had something to compare their own technique to.	1
Students were well equipped with using the iPads and did not need instructions on how to access the programmes they used.	1

Table 41: "Listen to explanations they are giving" activities reported from Survey 4 in England

"Snap and show ideas for others to discuss"	Responses
Students took pictures of essays and discussed as a class by portraying it on the white board through the apple TV.	3
Students demonstrated their ideas on the Book Creator app.	1
Students took pictures of their wishes using iPad's.	1
Students created an organisational chart putting each other in roles and pictures taken on iPad to share on the search network and to add it to their notes as a reminder.	1

Table 42: "Snap and show ideas for others to discuss" activities reported from Survey 4 in England

"Show what they've done and discuss how they've done it"	Responses
Teacher used the example of a student demonstration on the iPad to show to the class what they were doing correctly and what they need to improve on. Therefore, students had an idea of what was expected when using the iPad.	2
Teacher annotated work in presence through the apple TV to show how work has been created.	2
Students demonstrated their ideas on the Book Creator app.	1
Students videoed at a local primary school and then discussed how they could have used the iPad better to gain more information on the core values required.	1

Table 43: "Show what they've done and discuss how they've done it" activities reported from Survey 4 in England

"Let others comment on how to improve what they've done"	Responses
Groups of students had one iPad and rotated filming each other and comparing. The focus of this task was to peer assess using the iPads and see whether the iPads enabled the students to provide a high level of feedback.	3
Students had to videoed each other and then wrote on their coursework how they could improve their communication skills.	2
Students demonstrated their ideas on the Book Creator app.	1
Students did their practical performance and were able to comment on past works, describing how the skills could be improved.	1

Table 44: "Let others comment on how to improve what they've done" activities reported from Survey 4 in England

Across these six forms of activity, the teachers described:

- "Review and reflect", 3 activities.
- "Think forward", 1 activity.
- "Listen to my explanations", 2 activities.
- "Snap and show", 1 activity.
- "This is what I've done and how I've done it", 2 activities.
- "Tell me how I could improve this", 2 activities.

Learner Survey 5

Responses were received from learners in 3 schools. Most learners were around 17-18 years of age. More than half of the learners were girls. Half of the learners very much enjoyed the use of the mobile devices to support their learning. The majority used the mobile device every day or a few times in school. Uses varied, but most commonly they were used for working in the classroom. Many learners felt they understood things better, as well as finding out more information about certain topics.

Teacher Survey 5

Responses were received from teachers in 3 schools. Most teachers taught learners between 13 and 16 years of age. Since the last survey, the majority used the devices 1-5 times. Teachers described activities where they used mobile devices, related to the six forms of learning activity. Activities strongly related are highlighted in green in Tables 45 to 50.

"Review and reflect on their learning"	Responses
Students took pictures of their work using the iPads then used an app to highlight good elements as well as elements that could be improved.	4
Students were involved with their learning and they were able to think about their next steps when completing the motion maths games.	3
Students reacted well to using the iPads in class - because the group are now used to have iPads in lessons they focus, get started straight away and, concentrate throughout.	3
Students became aware of physical movements and used videos as a start for remembering pervious skills.	2
Students really enjoyed using the iPads in lessons. The biggest impact it had on students was in their engagement.	1

Table 45: "Review and reflect" activities reported from Survey 5 in England

"Think forward about their learning"	Responses
The iPads could be set up to demonstrate key skills and to make students aware of future progressions so they could see a clear pathway of learning.	3
By using this app students were able to understand how keywords were relevant in their lessons. Using the app students managed to completed topics correctly and in order of relevance.	2
Students can research the next topic area, as part of an extension strategy.	2
Students used iPads to make a presentation and a comic strip about a famous occurrence during the Victorian times. The iPads allowed them to work on the device in groups on different areas of the classroom.	1
The purpose of using the iPads in my lessons was to help students consolidate their learning and also helped me highlight gaps in their learning.	1
Students were confident to present work through apple TV.	1

Table 46: "Think forward about their learning" activities reported from Survey 5 in England

"Listen to explanations they are giving"	Responses
Students used apps in the lesson where they had been able to highlight different parts of their work on the board in front of the class.	2
Students found that the videos helped their understanding to explanations because it was clear to see what was being explained.	2
Students recorded feedback and use mind map as basis of exploring.	2
As students watch their work they annotate their notes and can listen on playback to see if it is accurate.	2
The sessions gave students opportunities to discuss the game and think about how they could move onto the next level.	1
Students don't listen to the instructions they are given as well as if they would with a worksheet for several reasons: a) the iPad provides an instant distraction for them b) majority of students believe they are already fluent with using iPads and therefore don't 'need' help c) students rush because they don't want to get left behind or be the only one not 'ready' in time.	1

Table 47: "Listen to explanations they are giving" activities reported from Survey 5 in England

"Snap and show ideas for others to discuss"	Responses
Use of iPads to film, and give instant oral feedback in practical lessons so students can make an instant improvement.	3
Teacher used the iPad in a PE lesson to annotate a video and the record of the students. The action of throwing and catching was shown and the students were able to discuss at length the different techniques they used to throw and catch.	2
Students used the iPads to take pictures of their work; these pictures were then displayed on the smart board using the apple TV. The rest of the class then discussed how the work could be improved.	1
Students used different methods to create their story to help with answer GCSE questions. They were then marked using this method and were shown to have made some progress.	1
Structuring essays and going through model answers. Take pictures as students essays and then as a class we discuss the strengths and weaknesses.	1

Table 48: "Snap and show ideas for others to discuss" activities reported from Survey 5 in England

"Show what they've done and discuss how they've done it"	Responses
Questionnaires and group discussions.	3
Students are happy to explain the work they've completed on the iPad and present it - but just as they would be happy to present an exercise book work.	2
Some students made a comic strip in the form of a recount for David and Goliath. They were able to state what the picture and caption represented.	1
After displaying their work on the board, students shared with the class why they chose the particular design features of their work.	1
Students are using the Socrative app and this helps highlight exactly what they have done and any gaps in their learning.	1
During Maths lessons students were able to discuss with their peers what they have learned and discuss with others where fractions would go on a number line.	1

Table 49: "Show what they've done and discuss how they've done it" activities reported from Survey 5 in England

"Let others comment on how to improve what they've done"	Responses
Students worked on a diary entry on the iPad which incorporated themselves through pictures and video entries. They discussed what they did over the holidays and then asked for questions.	2
Open discussions within the group, showing each other where they have looked for the information that is required to complete the task.	2
Students were asked to complete a swat analysis of their performance. This involved students sharing ideas about the quality of their work and how they might improve it.	2
Students peer marked work and demonstrated on the iPad what they had given for their mark.	2
Students peer assess in the same way they peer assess in exercise books.	1
The game allowed for students to collaborate and discuss their progress within the game. The level aspect of the game promoted healthy competition within the group.	1
After displaying their work on the board, the rest of the class discussed how the work could be improved.	1

Table 50: "Let others comment on how to improve what they've done" activities reported from Survey 5 in England

Across these six forms of activity, the teachers described:

- "Review and reflect", 3 activities.
- "Think forward", 2 activities.
- "Listen to my explanations", 2 activities.
- "Snap and show", 3 activities.
- "This is what I've done and how I've done it", 3 activities.
- "Tell me how I could improve this", 2 activities.

Looking across the surveys

From across the learner surveys, details of responses are shown in Table 51 following.

Feature	Survey 1	Survey 2	Survey 3	Survey 4	Survey 5
After x months	2	3	5	9	13
Number of schools	6	1	6	2	3
School sector	Two-thirds primary, one-third secondary	Secondary	Most primary	Most secondary	Most secondary
Gender balance	Three-fifths boys	All boys	More than half boys	More than half boys	More than half girls
Ease of use of the devices	1 in 10 did not find them easy	Most found them easy to use	Most found them easy to use		
Size of devices	Many said the size was right	Most said the size was right	Majority said the size was right	Majority said the size was right	
Reading text	Some said they could see this easily	Most said they could see this easily	Majority said they could see this easily		
Reading pictures	Some said they could see this easily	Most said they could see this easily		Majority said they could see this easily	
Knowing how to use them	Some not sure how to use them				

Feature	Survey 1	Survey 2	Survey 3	Survey 4	Survey 5
Liking the devices	About half liked them				
Uses in classrooms	Commonly reported	Commonly reported			Commonly reported
On their own	Commonly reported				
With groups of learners	Commonly reported		Commonly reported		
Writing text		Commonly reported		Commonly reported	
Looking at websites	Commonly reported	Commonly reported	Commonly reported		
Reading online		Commonly reported			
Sharing with teachers				Commonly reported	
Taking pictures	Commonly reported	Commonly reported	Commonly reported		
Recording video	Commonly reported				
Creating presentations			Commonly reported		
Benefiting technically	Commonly reported		Commonly reported		
Benefiting cognitively	Commonly reported				
Benefiting socially	Commonly reported				
Widening how they were learning	Commonly reported		Commonly reported		
Doing more school work		Commonly reported			
Finding more about topics		Commonly reported			Commonly reported
Understanding things better				Commonly reported	Commonly reported
Enjoying school more				Commonly reported	

Table 51: Summary from surveys of learner responses in England

Whilst the data in Table 51 do not come from a consistent sample of schools and pupils, nevertheless from across the population:

- Most pupils found the mobile devices easy to use (about 1 in 10 did not).
- Text and images on the mobile devices were generally easily read and seen, and the size was felt to be 'right'.
- The devices were used in classrooms, with groups, as well as individually.
- The devices were used in a wide range of ways, particularly focusing on sharing of work with others, both peers and teachers, taking pictures, recording videos, and creating presentations (see Figure 9 below). The impact of this on learners is demonstrated by their responses, which indicate learning more about topics, learning new skills, improved enjoyment of school, doing more school work, and getting improved marks in school (see Figure 10 below).
- Benefits from using the devices were identified by the learners across the period of the survey – up to 13 months from the start of the project.

Figure 9: Learner responses to how devices have been used in England

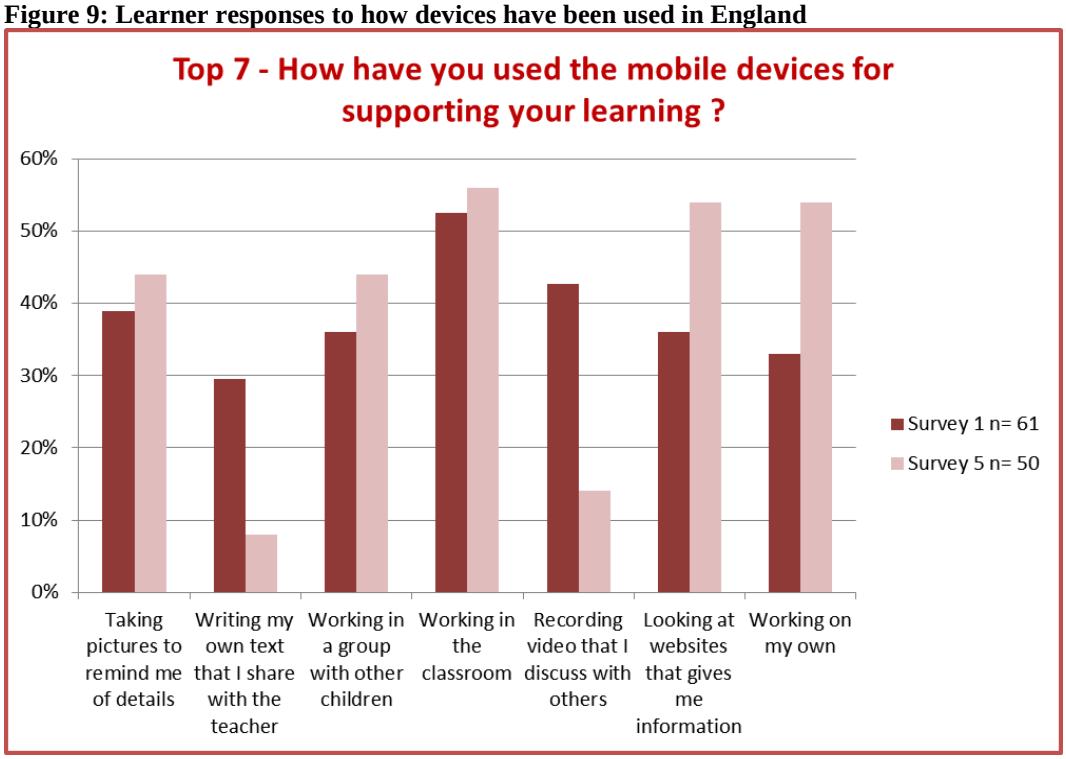
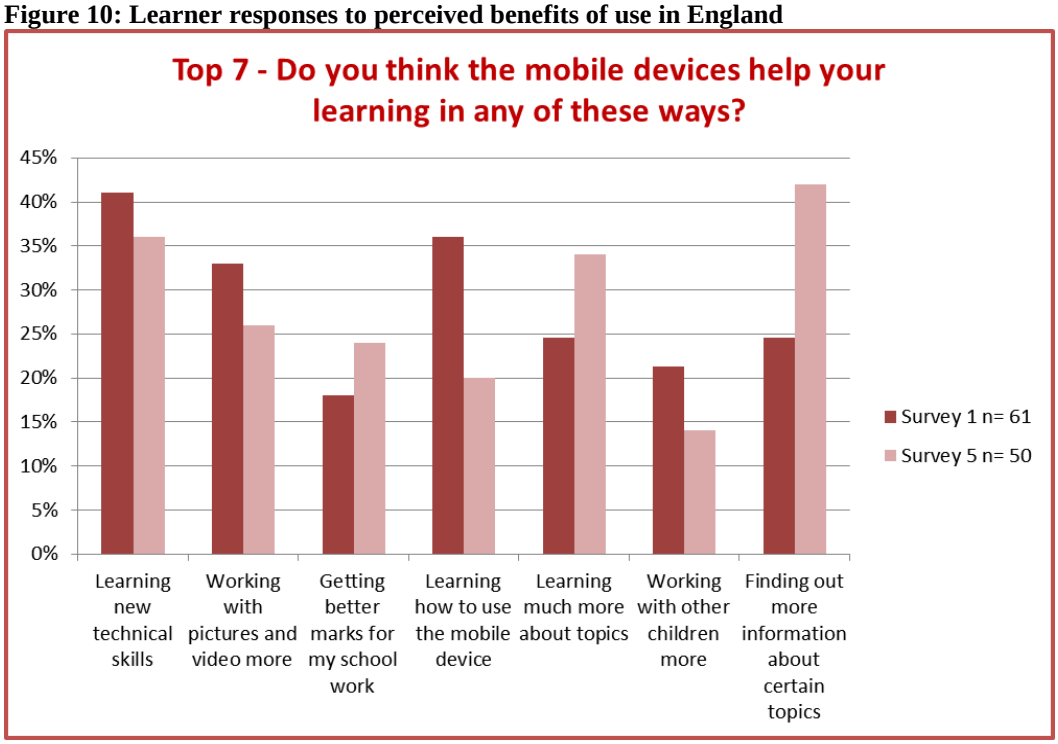


Figure 10: Learner responses to perceived benefits of use in England



From across the teacher surveys, details of responses are shown in Table 52 following.

Feature	Survey 1	Survey 2	Survey 3	Survey 4	Survey 5
After x months	2	3	5	9	13
Number of schools	4	1	11	3	3
School sector	Half primary, half secondary	Primary	Primary and secondary	Primary and secondary	Most secondary
Use since the previous survey	Half 1-5 times, quarter more	2-3 times per week	Majority 5-10 times	Majority 1-5 times	Majority 1-5 times
Ease of use	About a quarter found them easy to use	Easier than some other devices			
Enjoyment of use	Most enjoyed using them				
Training was helpful			Positively reported		
Help collaborative work			Commonly reported		
Record performances		Reported	Commonly reported		
Research information		Reported	Commonly reported		
Sharing and publishing work			Commonly reported		
Improving quality of feedback			Commonly reported		
Benefit interaction	Commonly reported				
Benefit mobility	Commonly reported				
Benefit motivation			Commonly reported		
Benefit engagement	Commonly reported				
Benefit independent learning	Commonly reported	Reported	Commonly reported		

Table 52: Summary from surveys of teacher responses in England

Whilst the data in Table 52 do not come from a consistent sample of schools and teachers, nevertheless from across the population:

- The devices were used regularly by teachers, about once a week on average.
- Most reported positively on ease of use and enjoyment.
- The common uses reported included collaborative work, researching for information, sharing and publishing work, and recording performances.
- In terms of types of activities, teachers reported “Review and reflect” (6), “Think forward” (3), “Listen to my explanations” (4), “Snap and show” (4), “This is what I’ve done and how I’ve done it” (5), and “Tell me how I could improve this” (4).
- Benefits were reported across the period of the project (13 months from the start), including positive benefits on engagement, motivation, independent learning, interaction, and improving the quality of work. The importance of the latter three was stressed particularly by teachers.

9. CONCLUSIONS AND RECOMMENDATIONS FOR THE FUTURE

This report has shown evidence gathered from, and subsequent analysis of, the outcomes of a training course. This course sought to develop practices in schools that would support teaching and learning using mobile devices. While there has been no attempt to identify quantitative differences between a controlled sample of users and non-users, data from the wide variety of teachers and learners involved in four countries provides a picture of the extent and depth of the outcomes on teaching and learning that have arisen.

Five surveys were used to gather evidence following teacher participation in the training programme. These surveys spanned the duration of the project, gathering evidence after 2, 3, 5, 9 and 13 months from outset of use. Although the same respondents did not contribute in each survey, the surveys have gathered evidence from the entire pool of teachers and learners involved in the project.

Learner responses show that use of the mobile devices was gained at very early stages, with most learners finding them easy to use, and enjoying their use (with exceptions of perhaps 1 in 10 learners). The majority of learners found the size to be appropriate, and they reported they could see images and read text easily. Uses varied, but there was clear use of the devices to support group and collaborative, as well as individual, work, with the creation of text, images and video that was integrated into multimedia productions.

The mobile devices were used by both primary and secondary school learners and teachers, with benefits widely reported across the sectors. These benefits covered not just technical and cognitive benefits, but social benefits, enhanced engagement and the widening of ways of learning. Enhancement of independent learning, of customised learning, and a reduction in limitations of time and place of learning, were all identified by teachers and learners as benefits arising from use. Flexibility offered by the devices was a key element of benefit identified by teachers.

However, there was some evidence that forms of activity beyond 9 months and identified after 13 months, as well as associated benefits being reported, were declining. These shifts could be due to the smaller number of countries reporting in the last survey. But, if not, then these shifts suggest that after a year, uses may tend to revert to more ‘traditional’ practices within schools. Productive uses of the mobile technologies were reduced in these reports, while receptive uses increased.

In Italy, some learners required more support than others in becoming accustomed to use of the devices. The focus of attention on group work and sharing was reported by learners to increase the amount of time they spent with teachers, and increased their enjoyment of school. Teachers reported that creation of videos and cartoons was associated with positive benefits of flexibility and working in ‘an adult world’.

In Greece, the devices were used largely outside classrooms, due to the need for teachers to adhere to legislation requirements. Uses involved sharing of work with others, taking notes outside school, taking pictures, and recording videos, which learners associated with more time doing school work, thinking about their work more, and finding out more about subject topics. The interdisciplinary work and planning involved for teachers was associated with particular benefits, enabling independent learning, interactive learning, flexibility, and removal of limits on learning in terms of time and place.

In the Netherlands, the devices were used more in classrooms, to support individual as well as group work with learners. Learners reported that sharing of work with others, both peers and teachers, was associated with increased enjoyment with school, doing more school work and understanding things better. Teachers reported benefits in terms of accommodating learner levels, not limiting learning in terms of advancement, flexibility, faster learning, independent learning, and customised learning.

In England, devices were used to support group, as well as individual, work. Uses focused on sharing of work with others, both peers and teachers, taking pictures, recording videos, and creating presentations. Learners associated these uses with learning more about topics, learning new skills, improved enjoyment of school, doing more school work, and getting improved marks in school. Teachers reported benefits in terms of independent learning, interaction, and improving the quality of work.

It should be noted that these results were provided by both learners and their teachers, from kindergarten, primary, secondary and vocational schools, offering views of use and outcomes across the 2 to 23 year age range. Results were also reported by both boys and girls, with no indicators of either gender not benefiting or benefiting more.

Overall, the training and the projects that followed can be considered successful. Positive outcomes have arisen, reported by both teachers and learners alike. In terms of forms of activities undertaken, however, the teachers reported the following in total: “Review and reflect” (23), “Think forward” (4), “Listen to my explanations” (14), “Snap and show” (11), “This is what I’ve done and how I’ve done it” (15), and “Tell me how I could improve this” (13). It is clear that “Review and reflect” was a much more popular activity than the others. In future development, therefore, the importance of “Think forward” activities would appear to be in need of much greater attention, perhaps balanced against a reduction of emphasis on “Review and reflect” activities.

While the training programme would appear to have the potential to support wider use in schools in different countries where curricula differ, it is also salient to note that schools might consider this as a ‘project’ rather than a ‘standard for integration’. It might be that the state of play after one year needs to be considered carefully, if this is the case. If teachers consider their deployment of outcomes from a training programme of this sort to be a project, then how such a project can be integrated into ‘standard practice’ needs to be considered and developed appropriately.

References

Alexander, R.J. (2008). *Towards Dialogic Teaching: rethinking classroom talk* (4th edition). Cambridge: Dialogos.

Arnheim, R. (1969). *Visual Thinking*. London: Faber and Faber.

Brown, J. (2002). Training needs assessment: A must for developing an effective training program. *Public Personnel Management, 31*(4), 569–578.

Gardner, H. (1991). *The Unschooled Mind: How Children Think, How Schools Should Teach*. New York, NY: Basic Books.

Passey, D. (2010). Mobile learning in school contexts: Can teachers alone make it happen? *IEEE Transactions on Learning Technologies: Special issue on mobile and ubiquitous technologies for learning.* Jan-Mar 2010, 3(1), 68-81.

Passey, D. and Zozimo, J. (2014a). *Mobile learning and information and communication technology teacher training in MLEARN partner countries: Research Report - Work Package 4*. Lancaster: Lancaster University.

Passey, D. and Zozimo, J. (2014b). *Research Report: A training needs analysis to support mobile learning and information and communication technology teacher training in MLEARN partner countries.* Lancaster: Lancaster University.

Schön, D.A. (1983). *The reflective practitioner: how professionals think in action.* New York, NY: Basic Books.

U.S. Office of Personnel Management (n.d.). *Training and Development – Planning & Evluating: Training needs assessment.* Accessed at: http://www.opm.gov/policy-data-oversight/training-and-development/planning-evaluating/#url=Training-Needs-Assessment. Retrieved: 26 April 2014.

Vygotsky, L.S. (1978). *Mind in Society: The Development of the Higher Psychological Processes*. Cambridge, MA: The Harvard University Press.

Wiliam, D. (2010). The role of formative assessment in effective learning environments. In: OECD (Ed.), *The nature of learning: Using research to inspire practice*. Accessible at: http://www.keepeek.com/Digital-Asset-Management/oecd/education/the-nature-of-learning/the-role-of-formative-assessment-in-effective-learning-environments_9789264086487-8-en

Appendix A

MLEARN surveys

Survey 1: Learners

School:	Age (years):	Gender (boy or girl):	Date:

1. Have you found it easy to use the mobile devices? (Please tick all that apply.)

Very easy	☐	It's easy sometimes	☐	It's not very easy	☐	I find it difficult	☐
They are too big	☐	The size is right	☐	They are too small	☐	I can't read the text	☐
I can easily read the text	☐	I can see the pictures easily	☐	I can't see the pictures very well	☐	I don't know what to do with them	☐

2. Have you enjoyed using the mobile devices? (Please tick all that apply.)

I don't like them	☐	I really like them	☐	I'm not sure if I like them	☐	Sometimes I like using them	☐

3. What have you used the mobile devices for? (Please tick all that apply.)

Taking pictures	☐	Recording video	☐	Looking at websites	☐	Reading text online	☐
Writing my own text	☐	Creating a presentation	☐	Making notes somewhere outside school	☐	Sharing my work with other children in the class	☐
Working in a group with other children	☐	Creating an audio file	☐	Working on my own	☐	Working with someone at home	☐
Showing work to my parent or guardian	☐	Sharing work with my teacher	☐	Showing my work and talking about it with others	☐	Looking at someone else's work and giving them my ideas about it	☐
Working in the classroom	☐	Working outside the classroom at home	☐	Working outside the classroom in the playground	☐	Working on a special visit, perhaps to a castle or a museum	☐

4. How do you think the mobile devices are helping you? (Please tick all that apply.)

Learning new technical skills	☐	Learning how to use the mobile device	☐	Learning how to use the mobile device for school work	☐	Finding out more information about certain topics	☐
Working with pictures and video more	☐	Learning much more about topics	☐	Working with other children more	☐	Sharing with teachers more	☐
Sharing with parents or guardians more	☐	Thinking about my work more	☐	Doing more school work	☐	Enjoying school work more	☐
Getting better marks for my school work	☐	Looking forward to going to school more	☐	Spending more time with teachers	☐	Spending more time working with other people	☐

Thank you for taking the time to answer these questions

Appendix B

MLEARN surveys

Survey 1: Teachers

School:	**Teacher:**	**Age of the class:**
Date:	**Number of times you have used the mobile devices in lessons:**	

Have you found it easy to use the mobile devices in class? If not, what are the problems you are finding?	Have you enjoyed using the mobile devices in lessons? If not, what are the reasons for this?	Have you found that there are things you can do with the mobile devices that you could not do in other ways? If so, what are these?	Have you found that learners are benefiting in any ways from using the mobile devices? If so, in what ways?

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Any correspondence about this report should be addressed to the first author:

Don Passey
Professor of Technology Enhanced Learning
Centre for Technology Enhanced Learning
Department of Educational Research
Lancaster University
Lancaster, LA1 4YL

Tel: 01524 592314
Email: d.passey@lancaster.ac.uk