

# Using wireless technologies for context sensitive education and training

## WP7 Use of context sensitive technologies in language learning

### Evaluation Report

## London Metropolitan University

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## **Introduction**

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This report presents the user evaluation of CONTSENS Work Package 7, Use of context sensitive technologies in language learning, at London Metropolitan University.

The aim of this work package was to examine the relationship between structure and activity during language learning. The urban planning tour which was designed for Workpackage 4 was reused to test the core theory that language learning for working professionals will improve if carried out in situ. The tour was translated into four languages: German, Spanish, Italian and French. The core premise of the work package was the hypothesis that learning a language in situ reinforced learning and ensured better recall.

The digital ‘technoscape’ was created to represent urban land, space, and subjects using a combination of social and cultural scripts. These included oral histories, local historical stories, and material elements that detail changes in the urban form, such as old photographs of pupils and landmark school buildings and historical maps. The intention was for the student to move through the re-constructed landscape and thus “perform that landscape” and to experience the locale through a virtual tour of the past and present.

### **Roles and authorship of this work**

Carl Smith developed the mobile application and conducted the trial with users.

Claire Bradley analysed the evaluation data, and produced this report.

## Evaluation results

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9 users used the software on location near to London Metropolitan University. Afterwards they each completed a questionnaire.

### The user group

#### Gender

	Frequency	Percent
Valid F	4	44.44
M	5	55.56
Total	9	100

#### Age

	Frequency	Percent
Valid 18-20	1	11.11
21-25	4	44.44
26-30	3	33.33
31-35	1	11.11
36-45	0	0
Over 40	0	0
Total	9	100

#### 1 Which mobile phone do you own?

Nokia N95  
iPhone  
LG  
iPhone  
iPhone  
Nokia  
iPhone  
Sony Ericcson  
iPhone

#### 2 Does your phone have GPS?

	Frequency	Percent
Valid Don't know	2	22.22
No	1	11.11
Yes	6	66.67
Total	9	100

**3 How would you rate your experience in using mobile phones?**

	Frequency	Percent
Valid Very experienced	4	44.44
Experienced	3	33.33
Not experienced	2	22.22
Total	9	100

**The questionnaire results**

**4 What did you think of the mobile learning course you have just experienced?**

N.B. Each respondent's comments are numbered so that comments made by individuals can be tracked across the different questions in the questionnaire.

- |   |
|---|
| <ol style="list-style-type: none"> <li>1. Interesting</li> <li>2. Good course</li> <li>3. Great</li> <li>4. Good.</li> <li>5. Very new way of learning. I enjoyed it a lot.</li> <li>6. Great</li> <li>7. Very good</li> <li>8. Fab.</li> <li>9. Interesting experiment.</li> </ol> |
|---|

**5 How would you rate its usefulness in learning the subject?**

	Frequency	Percent
Valid Extremely useful	3	33.33
Useful	5	55.56
Uncertain	1	11.11
Not useful	0	0
Extremely un-useful	0	0
Total	9	100

Average: 1.78

**6 It was easy to use the equipment.**

	Frequency	Percent
Valid Strongly agree	4	44.44
Agree	5	55.56
Uncertain	0	0
Disagree	0	0
Strongly disagree	0	0
Total	9	100

Average: 1.56

**7 It was easy to navigate through content.**

	Frequency	Percent
Valid Strongly agree	6	66.67
Agree	3	33.33
Uncertain	0	0
Disagree	0	0
Strongly disagree	0	0
Total	9	100

Average: 1.33

**8 The mobile learning experience was fun**

	Frequency	Percent
Valid Strongly agree	3	33.33
Agree	6	66.67
Uncertain	0	0
Disagree	0	0
Strongly disagree	0	0
Total	9	100

Average: 1.67

**9 I would take another mobile learning course if it was relevant to my learning needs.**

	Frequency	Percent
Valid Strongly agree	4	44.44
Agree	5	55.56
Uncertain	0	0
Disagree	0	0
Strongly disagree	0	0
Total	9	100

Average: 1.56

**10 I would recommend mobile learning as a method of study to others.**

	Frequency	Percent
Valid Strongly agree	3	33.33
Agree	6	66.67
Uncertain	0	0
Disagree	0	0
Strongly disagree	0	0
Total	9	100

Average: 1.67

**11 The mobile device enhanced the learning experience.**

	Frequency	Percent
Valid Strongly agree	6	66.67
Agree	3	33.33
Uncertain	0	0
Disagree	0	0
Strongly disagree	0	0
Total	9	100

Average: 1.33

**12 In what ways did it (or did not) enhance the learning experience?**

1. Better than a course book for languages.
- 2.
3. Situated learning.
- 4.
5. It was an excellent new approach to learning languages.
6. More concrete.
7. Made it more real.
8. It allowed me to learn English in interesting way.
9. Situating your learning experience.

**13 Which functions of the device did you use most?**

1. GPS
2. GPS
3. GPS
4. GPS
5. GPS and camera
6. GPS
7. GPS
8. Video camera
9. Camera.

**14 What did you think about the look and visual design of the course?**

1. Interface looked very fine.
2. Beautiful
3. Excellent
4. Excellent
5. Well put together and well thought out.
6. Good design.

7. Well designed
8. Well designed
9. Looked good.

**15 The course used location-based technologies to provide relevant learning materials to your phone. How did you find this?**

1. Very useful for me.
2. Yes, good.
3. New experience.
4. Great
5. Very good in principal but wonder whether it will scale up.
6. Unusual
7. Very useful.
8. Yes, this works very well.
9. Very accurate zones.

**16 Did you encounter any technical problems? If so, what problems did you have?**

1. None.
2. No
3. No
4. None.
5. Small screen.
6. No
7. No
8. No
9. No.

**17 What did you like most about the mobile learning course?**

1. Not in classroom - outside.
2. Went out with group.
3. Different way of learning
4. Novelty
5. Being embodied whilst learning.
- 6.
7. The interaction of other people
8. Novelty factor.
9. Being active.

**18 What did you like least about the mobile learning course?**

- 1.
2. Nothing. All good.
3. N/A
4. All good.
5. N/A
6. Small screen
7. Not enough content.
8. Too short.
9. More opportunity for interaction needed.

**19 Do you have any suggestions for how we could improve the mobile learning course?**

1. No.
2. No.
3. N/A
4. No.
5. Do it in more locations.
- 6.
7. Do different location.
8. Make available more language.
9. More opportunity for interaction needed.

## Conclusions

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9 users trialed the software and each completed a paper-based questionnaire afterwards.

### The user group

The user group comprised of adult learners training to be urban planners and designers. Of the 9 users who were involved in the trials, 56% were males. The age range was between 18 and 35. They all owned a mobile phone (5 had iPhones). 6 said that their mobile had GPS, 2 didn't know, and 1 answered the question as 'no'. 44.44% rated themselves as very experienced mobile phone users, 33.33% experienced, and 22.22% (2) as not experienced.

### The evaluation results

#### Summary of the results from the quantitative questions

Q5 How would you rate the tour's usefulness in learning the subject?	Extremely useful %	Useful %	Uncertain %	Not useful %	Extremely un-useful %	Average score %
	33.33	55.56	11.11	0	0	1.78
	89% positive		11%	0% negative		
	Strongly agree %	Agree %	Uncertain %	Disagree %	Strongly disagree %	Average score
Q6 It was easy to use the equipment	44.44	55.56	0	0	0	1.56
	100% positive		0%	0% negative		
Q7 It was easy to navigate through content	66.67	33.33	0	0	0	1.33
	100% positive		0%	0% negative		
Q8 The mobile learning experience was fun	33.33	66.67	0	0	0	1.67
	100% positive		0%	0% negative		
Q9 I would take another mobile learning course if it was relevant to my learning needs	44.44	55.56	0	0	0	1.56
	100% positive		0%	0% negative		
Q10 I would recommend mobile learning as a method of study to others	33.33	66.67	0	0	0	1.67
	100% positive		0%	0% negative		
Q11 The mobile device enhanced the learning experience	66.67	33.33	0	0	0	1.33
	100% positive		0%	0% negative		

The mean average score is obtained by allocating a score for each answer: 1 for 'extremely useful', 2 for 'useful', 3 for 'uncertain' and so on. The lower the average score, the more positive the rating is.

The results from each question are grouped below according to the different aspects that have been explored: the learning experience, the use of location-based technologies, the features of the course and its content, usability and design and suggestions for improvements.

## **The learning experience**

### **Q4 What did you think of the mobile learning course you have just experienced?**

All the users made very positive comments about the application. 3 said it was “good”, 2 described it as being “interesting”, and 2 said it was “great”. One said “Very new way of learning. I enjoyed it a lot”. All the comments made were:

- Interesting
- Good course
- Great
- Good.
- Very new way of learning. I enjoyed it a lot.
- Great
- Very good
- Fab.
- Interesting experiment.

### **Q5 How would you rate its usefulness in learning the subject?**

No negative ratings were given concerning the usefulness of the tour in learning the subject, but one was ‘uncertain’. 55.56% thought it was ‘useful’ and 33.33% extremely useful. The average score was 1.78.

### **Q11 The mobile device enhanced the learning experience.**

They all thought that the mobile device enhanced the learning experience: 66.67% ‘strongly agree’, 33.33% ‘agree’. The comments made in the responses to Q12 (see below) illustrate how they felt that the learning experienced was or was not enhanced by the use of the mobile device. The average score was 1.33.

### **Q12 In what ways did it (or did not) enhance the learning experience?**

7 users responded to this question, and all the comments were positive, indicating that the use of the mobile devices enhanced the learning experience, and confirming the responses given in Question 11.

The learning experience was enhanced in these ways?

- 2 users made comments that it provided them with “situated learning”.
  - “Situating learning.”
  - “Situating your learning experience.”

The other comments made were:

- “Better than a course book for languages.”
- “It was an excellent new approach to learning languages.”

- “More concrete.”
- “Made it more real.”
- “It allowed me to learn English in interesting way.”

**Q8 The mobile learning experience was fun**

They all agreed that the mobile learning experience was fun, with 33.33% answering ‘strongly agree’ and 66.67% ‘agree’. The average score was 1.67.

**Q9 I would take another mobile learning course if it was relevant to my learning needs.**

A good indication that the students had a positive experience and felt that they learned from the tour is that they all agreed that they would take another mobile learning course: 44.44% answered ‘strongly agree’, and 55.56% ‘agree’. The average score was 1.56

**Q10 I would recommend mobile learning as a method of study to others.**

All of the users would recommend mobile learning as a method of study to others. 33.33% ‘strongly agreed’ and 66.67% ‘agreed’. The average score was 1.67.

**The use of location-based technologies**

**Q15 The course used location-based technologies to provide relevant learning materials to your phone. How did you find this?**

All the users made positive comments, indicating that the learning materials provided to the phone were useful and relevant.

2 users said the course was “very useful”.

One said “Very good in principal but wonder whether it will scale up”.

Other specific comments made were:

- “New experience.”
- “Great.”
- “Unusual.”
- “Yes, this works very well”
- “Very accurate zones.”

**Q16 Did you encounter any technical problems? If so, what problems did you have?**

All users responded to this question, no-one indicated any problems, except for one who said “small screen”.

No problems were reported regarding the GPS signal, which had been an issue in some of the other workpackages.

## **Features of the course and its content**

### **Q13 Which functions of the device did you use most?**

The functions used most were (note that some cited more than one function):

- GPS – 7 users
- Camera – 2 users
- Video camera – 1 user.

### **Q17 What did you like most about the mobile learning course?**

All of the users except one responded to this question.

2 said that they liked the “novelty” factor.

The comments from 2 suggested that they liked the interaction of working with others:

- “Went out with group.”
- “The interaction of other people”

Other comments made were:

- “Not in classroom - outside”
- “Different way of learning.”
- “Being embodied whilst learning.”
- “Being active.”

### **Q18 What did you like least about the mobile learning course?**

All users except one responded to this question and said what they liked least. 4 said there was nothing that they didn't like.

Other comments were:

- “Small screen”
- “Not enough content.”
- “Too short.”
- “More opportunity for interaction needed.”

## **Usability and design**

### **Q6 It was easy to use the equipment.**

They all said it was easy to use the equipment: 55.56% answered ‘agree’ and 44.44% answered ‘strongly agree’. The average score was 1.56.

### **Q7 It was easy to navigate through content.**

They all found it easy to navigate through the content: 66.67% rated ‘strongly agree’, 33.33% rated ‘agree’. The average score was 1.33.

### **Q14 What did you think about the look and visual design of the course?**

All of the users made positive comments about the look and visual design of the course:

- 2 thought it was “well designed”, 2 “excellent” and 2 “good”.
- Other comments relating to the design were:
  - “Interface looked very fine”
  - “Beautiful”
  - “Well put together and well thought out”
  - “Looked good”

## **Suggestions for improvement**

### **Q19 Do you have any suggestions for how we could improve the mobile learning course?**

Some suggestions for how the course could be improved were made:

- 2 suggested that the locations available should be extended or changed: “do it in more locations”; “do different location”.
- Other comments were:
  - “Make available more language”
  - “More opportunity for interaction needed”

Comments made in response to other questions include that it was too short and that there could be more content.

4 users answered “no”, i.e. that they didn’t have any suggestions for improvement.

## Main conclusions

All users made very positive comments about **what they thought of the mobile learning course**. 3 said it was “good”, 2 described it as being “interesting”, and 2 said it was “good”. One said “Very new way of learning. I enjoyed it a lot”. All the comments made were:

1. Interesting
2. Good course
3. Great
4. Good.
5. Very new way of learning. I enjoyed it a lot.
6. Great
7. Very good
8. Fab.
9. Interesting experiment.

89% rated it as being useful for learning the subject. 100% thought **the mobile device enhanced the learning experience**, and the comments made illustrate their views. 2 users made comments that it provided them with “situated learning”: “Situated learning.”; “Situating your learning experience.” Other interesting comments were: “Better than a course book for languages.”; “It was an excellent new approach to learning languages.”; “More concrete.”; “Made it more real.”; “It allowed me to learn English in interesting way.”. They all agreed that the mobile learning experience was fun (33.33% answered ‘strongly agree), and they all agreed that they would take another mobile learning course if it was relevant to their learning needs. All of the users would recommend mobile learning as a method of study to others, which is a good indication that they had a positive experience.

On **the use of the location-based technologies**, all the users indicated that the learning materials provided to the phone were useful and relevant. 2 users said it was “very useful.” Responses to the question were brief, but one said it was a “new experience”, another “unusual”, and one said “this works very well”.

No users reported **problems with the technologies used**. They all answered the question, and only one made a negative comment, complaining about the “small screen” (note that this user has an iPhone for their personal phone, which would have had a larger screen than the device used for the trial, which could partly explain this response). No problems were reported regarding the GPS signal, which had been an issue in some of the other workpackages.

Responses about **the features of the course and its content** were also very positive. In response to the question ‘**what did you like most about the mobile learning course**’, 2 comments related to the fact that they liked the “novelty” factor of it, and 2 suggested that they liked the interaction of working with others: “Went out with group.”; “The interaction of other people”. Other comments made were: “Not in classroom - outside”; “Different way of learning.”; “Being embodied whilst learning.”; “Being active.”.

All users except one responded to the question ‘**what did you like least about the mobile learning course**’, and four said there was nothing that they didn’t like. Other comments

were: “Small screen”; “Not enough content.”; “Too short.”; “More opportunity for interaction needed.”

The **usability and design** of the course was also very well received. They all found the equipment easy to use and easy to navigate through the content. On the design, they all made positive comments; 2 thought it was “well designed”, 2 “excellent” and 2 “good”. Other comments relating to the design were: “Interface looked very fine”; “Beautiful”; “Well put together and well thought out”; “Looked good”.

Some **suggestions for improvement** were made. 2 suggested that the locations available should be extended or changed. One said “Make available more language”, and another said “More opportunity for interaction needed”

In conclusion, the reaction from the users towards the training package has been very positive. The use of the context sensitive technologies clearly made a difference to the experience of learning a language. The learning experience was enhanced for two users because it provides “situated learning”, whilst another liked “being active” and three others commented about the fact that they were outside of the classroom, learning in a group and interacting with other people. For others the learning experience was enhanced because it was “more concrete” and “made it more real”. One liked “being embodied whilst learning”. For two users it was the “novelty” factor that they liked. Some commented about the approach to learning languages, saying “Very new way of learning. I enjoyed it a lot”; “It was an excellent new approach to learning languages”; “Better than a course book for languages”; “It allowed me to learn English in interesting way”.

# Appendix 1: The student questionnaire

Version 2: 7/11/08

## CONTSENS Mobile Learning Evaluation Questionnaire

Please complete this questionnaire. Your views are very important to us, so please do give your honest opinion. All your answers are confidential, and you will not be identified in any resulting work.

Name:  Male:  Female:

Course or module:

Age: 18-20  21-25  26-30  31-35  36-45  Over 40

1. Which mobile phone do you own?

2. Does your mobile have GPS (Global Positioning System)? Yes  No  Don't know

3. How would you rate your experience in using mobile phones?

Very experienced  Experienced  Not experienced

4. What did you think of the mobile learning course you have just experienced?

5. How would you rate its usefulness in learning the subject?

Extremely useful  Useful  Uncertain  Not useful  Extremely un-useful

6. It was easy to use the equipment.

Strongly agree  Agree  Uncertain  Disagree  Strongly disagree

7. It was easy to navigate through the content.

Strongly agree  Agree  Uncertain  Disagree  Strongly disagree

8. The mobile learning experience was fun.

Strongly agree  Agree  Uncertain  Disagree  Strongly disagree

9. I would take another mobile learning course if it was relevant to my learning needs.

Strongly agree  Agree  Uncertain  Disagree  Strongly disagree

10. I would recommend mobile learning as a method of study to others.

Strongly agree  Agree  Uncertain  Disagree  Strongly disagree

11. Using the mobile device enhanced the learning experience.

Strongly agree  Agree  Uncertain  Disagree  Strongly disagree

12. In what ways did it (or did not) enhance the learning experience?

13. Which functions of the device did you use most?

14. What did you think about the look and visual design of the course?

15. The course used location-based technologies to provide relevant learning material to your phone. How did you find this (e.g. was the course material always relevant, did this work well, etc.)?

16. Did you encounter any technical problems, e.g. in using the device and/or location-based technologies? If so, what problems did you have?

17. What did you like most about the mobile learning course?

18. What did you like least about the mobile learning course?

19. Do you have any suggestions for how we could improve the mobile learning course?

If you would be interested in being involved in further research with us into using mobile phones for learning, please give your details below:

Name:

Email address:

Thank you for your help

## Appendix 2: The questionnaire responses in tabular format

### Questions 1-12

ID	Gender	Course/ module	Age	1 Phone	2 GPS	3 Phone experience	4 What did you think of the mobile learning course you have just experienced?	5 Usefulness in learning the subject	6 Easy to use the equipment	7 Easy to navigate through content	8 The mobile learning experience was fun	9 Would take another mobile learning course	10 Recommends mobile learning	11 The mobile device enhanced the learning experience	12 In what ways did it (or did not) enhance the learning experience?
1	1		2	Nokia N95	1	1	Interesting	2	1	1	2	2	2	2	Better than a course book for languages.
2	1	Spanish	2	iPhone	1	1	Good course	1	1	1	1	1	1	1	
3	2	Business	1	LG	1	3	Great	2	1	1	2	2	2	1	Situated learning.
4	1		2	iPhone	1	1	Good.	2	2	1	1	2	1	1	
5	1	Marketing	3	iPhone	1	2	Very new way of learning. I enjoyed it a lot.	1	2	1	2	2	2	2	It was an excellent new approach to learning languages.
6	2	Business	4	Nokia	2	3	Great	2	2	1	1	1	2	1	More concrete.
7	1		3	iPhone	3	1	Very good	1	1	2	2	1	2	1	Made it more real.
8	2	Business	3	Sony Ericcson	3	2	Fab.	3	2	2	2	2	2	2	It allowed me to learn English in interesting way.
9	2	Business	2	iPhone	1	2	Interesting experiment.	2	2	2	2	1	1	1	Situating your learning experience.

**Questions 13 onwards**

13 Which functions of the device did you use most?	14 Look and visual design	15 How did you find the location-based technologies?	16 Technical problems	17 What did you like most?	18 What did you like least?	19 Do you have any suggestions for how we could improve the mobile learning course?
GPS	Interface looked very fine.	Very useful for me.	None.	Not in classroom - outside.		No.
GPS	Beautiful	Yes, good.	No	Went out with group.	Nothing. All good.	No.
GPS	Excellent	New experience.	No	Different way of learning	N/A	N/A
GPS	Excellent	Great	None.	Novelty	All good.	No.
GPS and camera	Well put together and well thought out.	Very good in principal but wonder whether it will scale up.	Small screen.	Being embodied whilst learning.	N/A	Do it in more locations.
GPS	Good design.	Unusual	No		Small screen	
GPS	Well designed	Very useful.	No	The interaction of other people	Not enough content.	Do different location.
Video camera	Well designed	Yes, this works very well.	No	Novelty factor.	Too short.	Make available more language.
Camera.	Looked good.	Very accurate zones.	No.	Being active.	More opportunity for interaction needed.	More opportunity for interaction needed.