



National College of Ireland

Usability Testing Report For NALA's www.writeon.ie

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Summary

This report presents the findings of usability testing undertaken on NALA's new e-learning literacy tool 'www.writeon.ie'. This is a website that supports learners in improving their reading, writing and number skills. The research was conducted by National College of Ireland and usability testing took place in NCI's usability laboratory; the National E-learning Laboratory (NELL).

Five learners, who are representative of the website's target group, took part in usability testing. Users were observed performing a set of tasks in NCI's usability laboratory and their behaviour was then analysed using Observer XT technology. Users also completed an on-line pre and post test questionnaire and participated in a post test interview.

Results of testing revealed that overall, learners found www.writeon.ie a very relevant, interesting and engaging website. They liked the design; found the audio support helpful and felt that content was at the right level for them. However, testing also revealed that learners could not chart their overall progress in the system and when asked to re-start the lesson, all ran into difficulty. Nor did learners fully understand the feedback process.

Progression Learning Path	Learners could get started on different areas easily i.e Words area and understood they were on that topic. However they did not understand how much they had completed or what was left to complete in each unit. In particular, the Learning Units screen in pre-test caused much confusion.	888
Finding your way around website		88
Feedback	Currently, the system does not encourage learners to seek additional feedback or attempt incorrect exercise again.	88
Exercises	Generally successful, but some screens causing confusion such as Money screen (Pre-test listening), Signs Screen, Football Screen (Pre-test Reading), Envelope Screen (Pre-test Writing), Revolving Cards Screen (Learner units).	8
Design	All learners liked the design of system. They liked colours, size of text, space between words and thought the images useful.	000
Content	All learners said that they found content both relevant and appropriate to their level of studies.	000
Audio	All learners liked the audio support. Two learners did not see some of the smaller audio icons and four learners used audio to find answer in pre-test reading (signs screen) rather than read answer on screen	00

The table below summaries the main issues that emerged during usability testing:





Introduction

National College of Ireland

National College of Ireland is a third-level education provider committed to advancing knowledge in its specialist areas of business, human resource management, accountancy, finance, computing and community studies. Full and part-time courses in these areas are offered through the college's three Schools; the School of Business, the School of Computing and the School of Community Studies. Research at National College of Ireland is regarded as a core activity embedded in the academic culture and contributing to the overall mission of the college. Lifelong learning and workplace learning represent National College of Ireland's historical and current sphere of interest. www.ncirl.ie

The Centre for Research and Innovation in Learning and Teaching

Research activities are directed toward the following objectives:

- Study, develop, design and access new models, principles, practices, tools, artifacts and settings arising from the use of technology to support learning.
- Support and promote discourse on the application of e-Learning and blended learning within business, government and education sectors.
- Monitor, benchmark, review and report on national and international e-Learning policies and activities.
- Develop new models of teaching and training that support blended learning contexts.
- Apply flexible technology supported approaches to enhance skills in the workforce.
- Conduct research

The National e-Learning Laboratory (NELL)

The National e-Learning Laboratory (NELL) allows researchers to systematically explore and improve the use of learning and knowledge-based technologies. The laboratory consists of sophisticated hardware and software that can observe up to four participants simultaneously.

User behaviour and screen interactions are investigated using combinations of video and audio recording, screen-capture, precision keyboard & mouse logging and eye tracking.

NELL enables researchers to observe, record and analyse the behaviour of students interacting with e-learning resources.





This data allows researchers to evaluate the students' learning experience in terms of the quality of engagement, learning gain, efficiency, effectiveness and usability.

NALA

The National Adult Literacy Agency (NALA) was established in 1980. NALA is an independent membership organisation, concerned with developing policy, advocacy, research and offering advisory services in adult literacy work in Ireland. NALA has campaigned for the recognition of, and response to, the adult literacy issue in Ireland. www.nala.ie

www.writeon.ie

NALA have recently introduced a new on-line literacy tool called www.writeon.ie. The aim of this website is to support service users improve their reading, writing and number skills. Once learners have successfully completed on-line units they can receive FETAC certification.

NALA engaged NCI to conduct user testing on specified areas of the www.writeon.ie website and produce a report which would inform the on-going development of this resource.





Research Methods and Design

A user study was designed that would facilitate the observation of users of the system performing a number of tasks in close to realistic setting. The testing took place in NCI's usability laboratory; NELL.

Learner Study Protocol

- Pre-test on-line questionnaire (learner guided through this)
- Learner was given a scenario and asked to complete tasks
- Learner behaviour was observed and recorded during observation using video and sound recording and interaction logging
- Exit questionnaire (three of learners completed these)
- Post-test interview

Learners

"It takes only five users to uncover 80 percent of high-level usability problems" Jakob Nielsen (www.useit.com)

During this study, five testers were involved in usability testing. NCI recruited one NCI student, who fitted the target profile and NALA recruited four testers, all of which were existing users of NALA services. All users involved in this research were male. In the pre-test questionnaire, learners were asked to supply details about their backgrounds, experience with computers and any prior knowledge of the system. Please see Appendix 1 for an example of pre-test and post-test questionnaire.

Scenarios

During this test, User A was defined as learner who is interested in improving their reading, writing and listening skills. They have been directed to the 'www.writeon.ie' website. The user was asked to log on to the system, and carry out tasks listed below. Learners were asked to carry out the tasks unaided, however if noted through the observation that learners were having trouble doing this, observers will intervene to get the user back on track.

Learners were provided with instructions on a print-out, see example in Appendix 2.





Specific Tasks

Users were asked to complete a number of tasks during the test. Those tasks included:

Section 1

- 1. Open www.writeon.ie
- 2. Obtain password
- 3. Log-on to site

Section 2

4. Progress through Pre-test Listening, Reading and Writing screens

Section 3

- 5. Complete Pre-test Learning preferences and Learning Units screens
- 6. Progress through Learning Units (time permitting)

Section 4 -Side tabs

- 7. Log out of site, Log back on
- 8. Select Edutainment Button
- 9. Select a **news** story, open and note down what story is about.
- 10. Restart lesson where had previously left off





Results

The following section is divided into two parts. The first section will present data on each individual user's experience and observed behaviour. Based on individual observations and post interview feedback, we then assigned a success rating to each of the sub-tasks performed per user.

In the second section we present a summary of all five users' behaviour across sub-tasks. Based on these results, we then comment on usability aspects of the www.writeon.ie. We analyse the system as a whole in terms of five usability attributes: Usefulness, Ease of Use, Learnability, Satisfaction and E-Learning.

Several critical episodes that illustrate problems that users encountered during testing are compiled on the accompanying DVD.

Part 1 - The Users' Experience

The following section will present data and commentary on individual user experience and behaviour during throughout tests.

Learner 1 – Profile

Learner 1	Male, Age: Over 65. His highest level of formal education is Primary level.
Computer use	This participant has been using computers for less than six months and uses computers on a weekly basis. He mostly uses a laptop computer and uses mobile for phone calls only. He uses a computer for office packages such as Word etc., email and the Internet.
Previous Experience	He has not used NALA services before. Nor has he ever engaged with www.write.on





Observations Learner 1

TASKS (L1)	Time (secs)	Comple- tion	Errors	Observer comments	Post interview, learner	Suc- cess
Task 1: Logon	302	Y		used nickname	Very straightforward	1
Task 2: Pre-Test	2232					
Select Words Area	37	Y			Its obvious what to select	1
Pre-test Listening	687	Y	3	 Error 1 – did not see forward button for some time. Error 2 Train screen: Did not listen to audio. Error 3 Money screen with small audio buttons; did not understand what he had to do 		4
Pre-test Reading	644	Y	1	Error - Signs screen: trouble finding audio buttons n then listened to audio to find answer instead of reading		3
Pre-test Writing	664	Y				1
Select learning preferences	69	Y		Was able to choose 3 options	It's asking me what am I most interested in doing	1
Select learning units	131	Ν	1	Did not understand this screen. Tried back button and other buttons. Required intervention	This is a bit confusing. I thought I could move blue box down page & select what I want	5
Task 3: Learning unit screens	-	Ν		Was not asked to do this task		
Task 4: Log-in again	54	Y				1
Task 5: Edutainment	66					
Select Edutainment	6	Y				1
Note down news	60	Y				1
Task 6: Re- start/Progress	143					
Locate start/home page	10	Y	1	used browser back button	Not obvious how to do so	3
Select words area	1	Y				1
Find where left off	132	Ν	1	Once returned to learning units screen, unable to progress. Intervention	I don't understand it. If learning unit screen not moving down, I'd think I was doing something wrong	5

- Success Rating 1 = task completed and efficient; 2 = task completed but with hesitation; 3 = task completed with alternative route; 4 = task completed after error recovery; 5 = task incomplete or learner required intervention





Learner 1 Problem areas

Area	Feedback
Pre-test Listening	Train screen, drop down box.Did not listen to audio, read sentence and inserted word he thought made sense – Did not follow instructions.Money-banking screen:Did not see small audio buttons, once he did see them, still found difficult to complete task, was unsure what to do.
Pre-test Reading	Signs screen: Was initially unsure what to do, trouble locating small audio buttons. Used audio buttons instead of reading signs. Wanted to input euro sign but could not find on keyboard.Football screen-drag boxes: was initially unsure which way to drag – left to right or right to left. Did scroll down page.
Pre-test Writing	Envelope screen: Had problems getting names to stick to labels in the middle of screen.
Learning Preferences	Was able to click on 3 preferences
Learning units summary	Did not understand at all. Assumed he could click on what he wanted to study, expected highlighted box to move down page when clicked.
Locate home page	Used browser back button.
Restart/Progress	Did not understand how much he had done, what was left to do or where he should start again.
Navigation	 Hesitation finding forward button. Could progress through in linear fashion but got stuck when tried to deviate from going forward. Retry button – did not see or when questioned after test, understand purpose.
	Exercise Bar – did not see this and when questioned, did not understand purpose.
	Learning units – Did not see or understand purpose.





Others comments

Area	Feedback
Audio	This learner found the audio very useful, especially when he didn't understand instructions. However, he ignored some of the audio instructions in Listening pre-test and did not see some of the mini audio buttons.
Screens	Learner 5 found the exercises interesting and engaging. He enjoyed the interactive nature of screens e.g. Drag, click, drop-down etc. He would definitely recommend to a friend.





Learner 1 Post-observation Questionnaire Summary

Usefulness	100%	
This website meets my needs	5	
It does everything I would expect it to do	5	
This website allows me to do the things I want to do	5	
Ease of Use	90%	
It is easy to use this website	4	
It is easy to find what I am looking for	4	
The structure of this website is logical and easy to follow	5	
If I make a mistake, I can find my way again easily	5	
Learnability	93%	
It is easy to learn how to use this website	4	
I learned how to use this website quickly	5	
I can easily remember how to use this website	5	
Satisfaction	84%	
I like this website	5	
This website works the way that I want it to work	3	
This website annoys me	1	
I like how this website looks	3	
I would recommend this website to a friend/colleague	5	
e-Learning	69%	
I found the content relevant to my needs	5	
I found the content at the right level for me	3	
The course structure was presented in a clear way	3	
Feedback on activities was presented in useful way		
I found in possible to progress through this course on my own	3	
I found this course fun, engaging	5	
I found it easy to see my progress through this course	2	
I can adapt this course to my own needs		
Total	87%	

1 = strongly disagree; 5=strongly agree

Learner and observer discussed tasks and completed this questionnaire together.





Learner 2 Profile

Learner 2	Male, Age: Over 49-64. Highest level of formal education is Primary Level.		
Computer use	Has been using computers for over a year and uses computers on a weekly basis.		
	This participant uses a computer and mobile phones on a weekly basis. He uses a computer for office packages, Internet (for information not purchasing) and occasionally games.		
Previous Experience	He has used NALA services before and is currently a user of www.writeon.ie		





Learner 2 Observations

Time (secs)	Comple- tion	Errors	Observer comments	Post interview, learner	Success
64	Y		NALA Tutor assisted		1
1307					
44	Y			lts fairly obvious words is about words	1
472	Y	1	Picked up use of audio very quickly. Money screen: very hesitant	It was very specific, instructions	2
379	Y	1	Error: Signs screen - in 2 out of 3 signs used audio to find answer instead of reading signs		3
297	Y		Envelope screen: unsure where to stick label		1
38	Y		Was able to choose 3 options	l thought that was very good - what you think you would be good at	1
77	Ν	1	Did not understand and sought help	l found it hard to understand	5
375	Y	2	Did not realise if u you move mouse over tick, you get feedback or that you could retry	They mark them for you.	3
32	Y				1
131					
14	Y				1
117	Y				1
115					
9	Y	1	Used browser back button	Only way I know is with back button	3
105	Ν	1	Saw dropdown menu but did not click on forward button, used browser back button		3
-	Ν	1	Did get to learner units screen, did not understand how to progress. intervention		5
	64 1307 44 472 379 297 38 77 38 77 32 131 14 117 129 9	(secs) tion 64 Y 1307 Y 44 Y 472 Y 379 Y 297 Y 38 Y 375 Y 32 Y 131 Y 14 Y 115 Y 105 N	tion Errors 64 Y 1307 Y 44 Y 472 Y 1 379 Y 1 297 Y 1 38 Y 1 375 Y 2 375 Y 2 32 Y 1 14 Y 1 177 Y 1 131 2 32 Y 1 117 Y 1 105 N 1	(secs)tionErrorscomments64YNALA Tutor assisted1307130744YPicked up use of audio very quickly. Money screen: very hesitant472Y1Picked up use of audio very quickly. Money screen: very hesitant379Y1Error: Signs screen - in 2 out of 3 signs used audio to find answer instead of reading signs297Y1Envelope screen: unsure where to stick label38YWas able to choose 3 options375Y2Did not understand and sought help375Y2Did not realise if u you move mouse over tick, you get feedback or that you could retry32Y1117Y1159Y1Used browser back button105N1Saw dropdown menu but did not click on forward button, used browser back button-N1Did get to learner units screen, did not understand how to	Get Y NALA Tutor assisted 1307 44 Y 44 Y 472 Y 1 Picked up use of audio very quickly. Money screen: very hesitant It was very specific, instructions 379 Y 1 used audio to find answer instead of reading signs 379 Y 1 used audio to find answer instead of reading signs 297 Y Envelope screen: unsure where to stick label I thought that was very good - what you think you would be good at 38 Y 2 Did not understand and sought help I found it hard to understand if reading it you move mouse over tick, you get feedback or that you could be good at 375 Y 2 Did not realise if u you move mouse over tick, you get feedback or that you could retry They mark them for you. 32 Y 1 Used browser back button Only way I know is with back button 117 Y 1 Saw dropdown menu but did not click on for you, used browser back button Only way I know is with back button 105 N 1 Saw dropdown menu but did not click on forward button, used browser back button Only way I know is with back button 105 N 1

Success Rating 1 = task completed and efficient; 2 = task completed but with hesitation; 3 = task completed with alternative route; 4 = task completed after error recovery; 5 = task incomplete or learner required intervention





Learner 2 Problem areas

Area	Feedback				
Pre-test Listening	Money-banking screen: Hesitant. Listened to audio 3 times but was still unsure how to progress for quite some time. His answers were partially correct.				
Pre-test Reading	Signs screen: Hesitation. In 2 out of 3 signs used audio instead of reading signs to find correct answer. Football screen-drag boxes: was initially unsure which way to				
	drag – left to right or right to left. Did not scroll down screen.				
Pre-test Writing	Envelope screen: Was unsure WHERE to stick names, addresses – e.g at side, in middle? (Did not see yellow labels in middle)				
Learning Preferences	Was able to click on 3 preferences.				
Learning units summary	Did not understand at all. Tried audio but that did not help him. Required intervention and when instructed to do so, clicked through.				
Learning Units screens	Learners says he did see corrections (ticks and crosses). Did not realise that more feedback available if roll over word. Did not realise that user had option of trying again through retry button.				
Locate home page	Used browser back button.				
Restart/Progress	Did not understand how much he had done, what was left to do or where he should start again.				
Navigation	Could progress through in linear fashion but got stuck when tried to deviate from going forward.				
	 Retry button – did not understand purpose. Exercise Bar – did not see this and when questioned, did not understand purpose. Save button – when pointed out in post interview, was unsure of its purpose. 				





Others comments

Area	Feedback
Audio	Learner found the audio very useful, especially for support with reading. He felt audio buttons/icons were obvious and called them <i>-my friends</i> .
Screens	He liked them.
Design	Says that he very much liked the designs and colours of site, says it would draw his attention – <i>it's a lovely site</i> . Would recommend to a friend.
Content	Maintains that it was right level for him. Liked the way that users were shown how to do something and then had to do it, e.g. 'text speak





Learner 3 Profile

Learner 3	Male, Age: Over 49-64. His highest level of formal education is Primary level.			
Computer use	This Learner has been using computers between six months and a year. He mostly uses a computer and a mobile phone but does not use his mobile for the Internet. He uses a computer for office packages such as Word etc. and email on a weekly basis and uses the Internet and e-learning on a daily basis.			
Previous Experience	He has used NALA services before. He is a current user of www.write.on			





Learner 3 Observations

TASKS (L3)	Time (secs)	Comple- tion	Errors	Observer comments	Post interview, learner	Suc- cess
Task 1: Logon	115	Y	1	Didn't enter nickname, no feedback on error, logged in after several attempts	dead easy	4
Task 2: Pre-Test	1486					
Select Words Area	11	Y				1
Pre-test Listening	495	Y	1	Money screen: ticked all answers	instructions were clear, audio told me what to do (but he actually did task incorrectly)	3
Pre-test Reading	393	Y	2	Error: Signs screen - did not understand what to do, used audio. Error 2: Screen football match, did not scroll down	oh, didn't realise there was more of them (screen football)	4
Pre-test Writing	441	Y				1
Select learning preferences	56	Y		selected several	I would chose all of them (all relevant to me) except money - I already know about money	1
Select learning units	89	Ν	1	clicked on many areas but could not progress, required intervention	l got stuck on this	5
Task 3: Learning unit screens	247	Y		Didn't observe if he saw feedback. When prompted in post interview, said that he did not observe feedback	l didn't see them	1
Task 4: Log-in again	40	Y				1
Task 5: Edutainment	89					
Select Edutainment	41	Y				1
Note down news	48	Y				1
Task 6: Re- start/Progress	900					
Locate start/home page	83	Ν	1	Clicked back onto pre- test quest. by mistake, required intervention. Then used browser back button		5
Select words area	30	Y				1
Find where left off	787	N	1	Spent a lot of time with tutor looking for this. Kept landing on learning units completion screen and thought this was incorrect	I'm back to square one - this is the wrong one. I was trying all the buttons	5

Success Rating 1 = task completed and efficient; 2 = task completed but with hesitation; 3 = task completed with alternative route; 4 = task completed after error recovery; 5 = task incomplete or learner required intervention





Learner 3 Problem areas

Area	Feedback
Pre-test Listening	Money-banking screen: Was unsure what to do, ticked all boxes (incorrect). Did not understand instructions.
Pre-test Reading	Signs screen: Hesitation. In 2 out of 3 signs used audio to find answer instead of reading signs.
	Football screen-drag boxes: was initially unsure which way to drag – left to right or right to left. Did not scroll down screen.
Learning Preferences	Selected several options.
Learning units summary	Did not understand at all. Tried audio but this did not help him. Required intervention and when instructed to do so, clicked through.
Learning Units screens	Got all these exercises correct, but when questioned in post interview, says that he did not see feedback but did understand that if he had seen feedback, he could retry. Revolving cards screen: spent much time on this screen just before test was ended.
Locate home page	Used browser back button.
Restart/Progress	Spent quite a bit of time trying to restart, didn't understand that when landed on learning units summary page that he could continue from here.
Navigation	Found forward button quickly (is currently using system) Did not understand purpose of exercise button. Says he realises purpose of Retry button and if he made a mistake, could retry using this button (didn't observe him doing this).

Others comments

Area	Feedback
Audio	Learner liked audio and thinks audio buttons obvious.
Design	Very much liked designs and colours that they are right one for a site like this- I found it easy to see.
Content	Found it interesting. He says its excellent and I will be back on it soon.





Learner 4	Male, Age: 33-48. His highest level of formal education is Junior Cert Level.
Computer use	This participant has been using computers for over a year and uses computers on a daily basis.
	He uses his laptop and mobile phone (without internet) daily. He uses his computer for office packages such as Word etc. email and Internet on a daily basis. He is also engaged in e-learning on a regular basis.
Previous	He rang NALA to receive a phone number about their services but
Experience	has not followed up. He has not used www.writeon.ie before.
Note	This user appeared to be at a slightly higher level of competence than other users.





Learner 4 Observations

TASKS (L4)	Time (secs)	Comple- tion	Errors	Observer comments	Post interview, learner	Suc- cess
Task 1: Logon	82	Y		Used nickname		1
Task 2: Pre-Test	1058					
Select Words Area	27	Y			It is obvious there is a choice of numbers, words etc.	1
Pre-test Listening	428	Y				1
Pre-test Reading	272	Y	1	Error: Signs screen - on 2 out of 3 signs used audio instead of reading signs	Football screen-match boxes: It was not immed. <i>Obvious what</i> to do?	3
Pre-test Writing	276	Y	1	Envelope screen: hesitant at first	l didn't get it	2
Select learning preferences	39	Y		Selected one option	It was giving me a choice learn something I was interested in	1
Select learning units	17	Ν	1	Clicked through, but did not understand what it is	I just kept following the arrows. I though it would bring me to an area where I could learn about writing notes" (that's what it said)	4
Task 3: Learning unit screens	410	Y	2	Revolving cards screen: unsure about task. Spelling marker screen: Did look at feedback but did not try again		3
Task 4: Log-in again	23	Y				1
Task 5: Edutainment	182					
Select Edutainment	18	Y				1
Note down news	164	Y				1
Task 6: Re- start/Progress	55					
Locate start/home page	17	Y		Used Leaner units button under learner	What attracted me there was the word 'units'	1
Select words area	14	Y		Started at 'writing		1
Find where left off	25	N	1	clicked through learner units summary page & started learning units again (hadn't completed section previously)	l don't know what is left for me to do	5

Success Rating 1 = task completed and efficient; 2 = task completed but with hesitation; 3 = task completed with alternative route; 4 = task completed after error recovery; 5 = task incomplete or learner required intervention





Learner 4 Problem areas

Area	Feedback
Pre-test Reading	Signs screen: Hesitation. In 2 out of 3 signs used audio to find answer instead of reading signs. Football screen-drag boxes: was initially unsure what to do.
Pre-test Writing	Envelope screen: Was initially unsure what to do. Hesitation.
Learning Preferences	Selected one preference.
Learning units summary	Did not understand at all. Clicked through and assumed this would bring him to a screen about 'writing notes'.
Learning Units screens	Revolving cards screen: took a lot of time for him to understand what to do for this excercise, did one card only and continued. Spelling marker screen: came across feedback by accident (rolled over) but did not understand he could have retried exercise.
Restart/Progress	Did arrive at correct place – learning units but was unsure what to do next or where he was going.
Navigation	Thought forward button should be at bottom of screen. Did see exercise button but did not know why it was there. Used back browser button.

Others comments

Audio	Thought this was excellent.
Design	He thinks website is was very user friendly, pictures relevant, clear writing, gaps between words appropriate. <i>It is not intimidating in any way – I think it is better than BBC website</i> .
Screens	Did not read welcome screens all way through.
Content	Thought the level was appropriate for him.





Learner 4 Post-observation Questionnaire Summary

Usefulness	87%
This website meets my needs	3
It does everything I would expect it to do	5
This website allows me to do the things I want to do	5
Ease of Use	95%
It is easy to use this website	5
It is easy to find what I am looking for	4
The structure of this website is logical and easy to follow	5
If I make a mistake, I can find my way again easily	5
Learnability	100%
It is easy to learn how to use this website	5
I learned how to use this website quickly	5
I can easily remember how to use this website	5
Satisfaction	100%
I like this website	5
This website works the way that I want it to work	5
This website annoys me	1
I like how this website looks	5
I would recommend this website to a friend/colleague	5
e-Learning	85%
I found the content relevant to my needs	3
I found the content at the right level for me	5
The course structure was presented in a clear way	4
Feedback on activities was presented in useful way	4
I found in possible to progress through this course on my own	4
I found this course fun, engaging	5
I found it easy to see my progress through this course	4
I can adapt this course to my own needs	5
Total	93%

1 = strongly disagree; 5=strongly agree

Learner and observer discussed tasks and completed this questionnaire together.



Learner 5 Profile



Learner 5	Male, Age 49-64yrs. His highest level of formal education has been at Primary level.
Computer use	Has been using computers between six months and a year. He uses his computer and mobile phone (without internet) daily. He does not use office applications such as Word etc. but does use email and the Internet regularly. He does not uses games or engage in e- learning.
	He is a current user of NALA services and has never used www.writeon.ie before.
Note:	This learner committed quite a few errors when completing tasks. However, with this particular learner we are unsure as to whether this was a system error or whether learner misunderstood our instructions.





Learner 5 Observations

TASKS (L5)	Time (secs)	Comple- tion	Errors	Observer comments	Post interview, learner	Success
Task 1: Logon	103	Y		Used nickname		1
Task 2: Pre-Test	1937					
Select Words Area	120	Ν	1	Selected learning to learn area instead - misunderstood instruction?		5
Pre-test Listening	759	Y	1	Error 1 - did not see forward button at top, required intervention	To me that button should be down there (bottom).	5
Pre-test Reading	561	Y		Hesitation on signs screen.		2
Pre-test Writing	442	Y				1
Select learning preferences	44	Y		clicked one only	lt's about which course I want to do	1
Select learning units	11	Ν		Clicked through, but misunderstood meaning	This tells me that my spelling was bad	5
Task 3: Learning unit screens	279	Y	1	Did not notice marks or feedback - did not receive negative feedback	l double click on habit	1
Task 4: Log-in again	23	Y				1
Task 5: Edutainment	174					
Select Edutainment	157	Ν	1	Went to words section instead - misunderstood instructions? Intervention	l didn't get that	5
Note down news	17	Ν	1	Went to text area instead - misunderstood instruction? Intervention		5
Task 6: Re- start/Progress	126					
Locate start/home page	21	Y	1	Used back button		3
Select words area	105	Ν	1	Used back button and then logged out by mistake- finished test		5
Find where left off	-	Ν	1		I don't know where to go	5

Success Rating 1 = task completed and efficient; 2 = task completed but with hesitation; 3 = task completed with alternative route; 4 = task completed after error recovery; 5 = task incomplete or learner required intervention





Learner 5 Problem areas

0	
Area	Feedback
Pre-test Reading	Signs screen: Hesitation. Did not see small audio buttons. Tried to input euro sign. Was confused as to what to do. Inconsistency in 3 tasks (signs). First sign relates to grammar in sign, other two signs relate to content contained in signs.
	<u>Football screen-</u> drag boxes: was initially unsure what to do, where to drop boxes.
Pre-test Writing	Envelope screen: Was initially unsure what to do, left one name on top left hand corner.
Learning Preferences	Selected one preference.
Learning units summary	Clicked through. Did not understand, thought this screen related to progress and his spelling.
Learning Units screens	Did not notice any feedback at all – when questioned in interview, he assumed he had double-clicked through, so didn't get any corrections. (He did get corrections but didn't see them).
Restart/Progress	Used browser back button, logged out by mistake. Confused. When questioned, did not know was unsure how to check progress – suggested results area.
Navigation	Did not see forward button at top (intervention), says it should be at bottom of screen. Thought retry button said 'retire', and when this was clarified, that it was part of the forward button Did not understand what the exercise button

Area	Feedback
Audio	Thought this good – thought it could make you a little lazy too
Design	Liked colours, size of text, words etc.
Screens	Did not read welcome screens all way through.
Content	Thought content was good – quite advanced. He says if he tried this site six months ago (before he engaged with NALA), it would have been very difficult for him.





Learner 5 Post-observation Questionnaire Summary

Usefulness	87%
This website meets my needs	4
It does everything I would expect it to do	4
This website allows me to do the things I want to do	5
Ease of Use	80%
It is easy to use this website	4
It is easy to find what I am looking for	4
The structure of this website is logical and easy to follow	4
If I make a mistake, I can find my way again easily	4
Learnability	80%
It is easy to learn how to use this website	4
I learned how to use this website quickly	4
I can easily remember how to use this website	4
Satisfaction	96%
I like this website	5
This website works the way that I want it to work	4
This website annoys me	1
I like how this website looks	5
I would recommend this website to a friend/colleague	5
e-Learning	58%
I found the content relevant to my needs	5
I found the content at the right level for me	3
The course structure was presented in a clear way	3
Feedback on activities was presented in useful way	2
I found in possible to progress through this course on my own	2
I found this course fun, engaging	4
I found it easy to see my progress through this course	1
I can adapt this course to my own needs	3
Total	80%

1= strongly disagree; 5=strongly agree

Learner and observer discussed tasks and completed this questionnaire together.





Part 2 – Summary of Users' experience

In this section, we present a summary of users' experience during testing. We first present a table summarising all user behaviour across sub-tasks and then comment on the overall usability attributes of the www.writieon.ie system.

Task	Time	# of				Rati rne		Comment
TUSK	(median)	errors	1	2	3	4	5	
Task 1: Logon	103	1	1	1	4	1	1	Successful. Only one learner had difficulty with completing nickname field.
Task 2: Pre-Test	1486							
Select Words Area	37	1	1	1	1	1	5	Successful. One learner required intervention to access words area, but unclear whether system error or whether learner did not understand instruction.
Pre-test Listening	495	6	4	2	3	1	5	Generally learners were able to access and progress through this section. However, some issues arose when (a) two learners had problems with locating the forward button (b) screens – money/banking screen, 3 learners had difficulty & did not complete this correctly.
Pre-test Reading	393	5	3	3	4	3	2	Generally learners were able to access and progress through this section. All learners had issues with signs screen, four of them finding answer rather than reading content. Football screen (drag boxes) 4 Learners initially unsure which way to drag boxes, 2 did not scroll down screen.
Pre-test Writing	441	1	1	1	1	2	1	No significant issues. Stickiness of labels on envelope screen" caused some confusion and it was not immediately obvious what labels were e.g. address line 1, line 2 etc.
Select learning preferences	44	0	1	1	1	1	1	Three learners made multiple selections, while only one selection should be allowed.
Select learning units	77	4	5	5	5	4	5	Unsuccessful. None of the learners understood information provided on this screen. Three learners required intervention. The other 2 clicked through but did not understand meaning of screen.
Task 3: Learning unit screens	327	5		3	1	3	1	Three learners say they saw ticks and crosses (1 did not do this task & other says he did not see them). Only 1 learner rolled mouse over word to receive detailed feedback. The other learners were not aware that feedback was available. No learner used the retry button and four of them were not aware that they could reattempt task.
Task 4: Log-in again	32	0	1	1	1	1	1	Successful.





Task 5: Edutainment	131							
Select Edutainment	18	1	1	1	1	1	5	Successful. One learner (L5) required intervention to access edutainment area, but unclear whether system error or learner did not understand instruction.
Note down news	60	1	1	1	1	1	5	Successful. 1 learner (L5) unclear whether system error or learner did not understand instruction.
Task 6: Re- start/Progress	126							
Locate start/home page	17	4	3	3	5	1	3	Only one learner was able to navigate back to the main screen through Learning Units. Three learners used back button. One learner required intervention.
Select words area	67.5	2	1	3	1	1	5	Generally successful. One learner used back button rather than navigating to the learning unit.
Find where left off	132	5	5	5	5	5	5	Unsuccessful. Three learners unable to restart. While two learners found the learning units screen, they thought on wrong screen.

Success Rating 1 = task completed and efficient; 2 = task completed but with hesitation; 3 = task completed with alternative route; 4 = task completed after error recovery; 5 = task incomplete or learner required intervention





Usability Attributes of www.writeon.ie

What is usability?

The term Usability describes the ease with which people can employ a particular tool or other human-made object in order to achieve a particular goal (Nielsen, 2001). While the term is mainly used in the context of software products and websites, the principles of usability may be applied to almost any everyday object that is used by humans.

The primary goals of usability include:

- To make the product more efficient to use: it takes less time to accomplish a particular task
- To make the product easier to learn: operation can be learned by observing the object
- To make the product more satisfying to use

With software products step by step penetrating our daily lives, more and more companies and organisations recognise the importance and the benefits of researching and developing their products with user-oriented instead of technology-oriented methods. Observing and interviewing users can provide valuable feedback to developers and designers. Usability studies may identify required functionality or design flaws. While opinions on the different factors that make up usability vary slightly, in most of our projects in NELL we look at the following dimension:

- Usefulness: Does the product support the tasks and activities the user wants and needs to do?
- Ease of Use: How easy is the product to use?
- Learnability: How easy is it for users to accomplish basic tasks the first time they encounter the design?
- Satisfaction: How pleasant is it to use the design?
- E-Learning: As most of our projects are concerned with on-line learning, we include this dimension which describes the quality of the learning experience.





Usability Attributes of the www.writeon.ie

In this section we analyse the usability of the www.writeon.ie on-line literacy Prorgamme. The analysis is based on the quantitative data from the post questionnaire as well as on comments given by the learners in the debriefing interviews.

We developed a questionnaire with 23 items referring to the scales usefulness, ease of use, learnability, satisfaction and e-Learning. While the first four are standard usability dimensions, for learning related products we added a scale that explores the learning experience. Scores for each item range from strongly disagree (1) to strongly agree (2). The scale score indicates the percentage of the maximum score. The total score indicates the average of all scales. It is interesting to note, that in the post-test questionnaire, Learners scored most of the usability attributes at a high level. However, our observations during testing tell us that although they may have scored Ease of Use, Learnability etc. highly, they did encounter some difficulties with these areas.

Usefulness

All learners found the website very useful. They agreed that the course meets their expectations and that it allows them to do the things they wanted to do.

Ease of Use

In the post-test questionnaire many of the learners stated that they found the course easy to use. Once they had learned how to progress through the course (see learnability) learners could easily progress through the pre-test screens. Nevertheless, all learners required intervention at various stages during testing, most notably when using forward button, back button, finding the start page and progressing on from pre-test learning units screen.

In real learning settings this support might not be available and learners might discontinue learning when experiencing problems. All learners complemented the design of the system.

Learnability

Learners claimed that they found their way around the website very quickly. While logon and selection of learning area went smoothly for all learners, two learners experienced problems using the forward button. Once shown how to use this, they experienced no





problems progressing through screens. However, when questioned, none of the learners understood the overall structure of the website.

Satisfaction

Overall, learners were very satisfied with the website (*excellent – this website is better than the BBC!*). All learners expressed their intention to use the course again in order to improve their skills. All would recommend to a friend.

e-Learning

Despite obvious differences of the observed learners in their literacy level, all felt that the content was appropriate for them *(interesting, at the right level)*. All learners liked the audio support. Many commended the interactive nature of the course.

The three lowest scoring items in the post-test questionnaire overall referred to progress (*I found it possible to progress through this course on my own, I found it easy to see my progress through this course*) and feedback (*Feedback on activities was presented in useful way*). It is obvious from Leaner behaviour observed during testing that all learners had difficulties in those areas. Both of these areas are discussed in more depth in the next section.





Findings

In the final section, we discuss the main issues that emerged during usability testing of www.writeon.ie.

Understanding how to progress 😕 😕

When questioned some learners said they understood the concept of the pre-test and then progression onto learning units. This was not obvious from their behaviour. None understood that they had to complete a learning unit section before their score was calculated. When asked to re-start lesson, none were able to do so. *Note: once in pre-tests screens, you could not tell from system which pre-test screen you were in.*

None of these learners could tell us what they had done to date, where they were in terms of progression towards completion of unit and what was left to complete in that particular area.

In particular, the **Learning Units screen** in pre-test caused much confusion and halted progression.

Finding their way around the website 88

Generally logon was successful, though one learner had difficulty when he left nickname field blank, he became confused as system did not specify what the error was. The Homepage was generally understood by learners, who easily selected both Words area and Edutainment areas.

Once learners selected Words area to work on, they could generally progress through screens in a linear fashion. However, when asked to deviate from this, learners ran into problems. More specifically:

Forward button: Was not obvious to 3 users who expected it to be located at bottom of page.

<u>Homepage:</u> 4 users used browser back button to locate as they did not see or understand Learner Unit Tab.





Exercise Bar: none understood its purpose. <u>Retry button:</u> 4 users did not understand this (fifth user is a current user of system).

Learners could choose what they wanted to work on, but not comfortably **navigate** their way around this website.

Feedback was not obvious to Learners 88

No feedback given in pre-test sections. Feedback in Learning Units was not immediate and was available only when learner completed exercise and clicked on forward button. Most of learners (all bar 1) say that they did see first level of feedback e.g. ticks and crosses which let them know if they had completed exercise correctly or not.

Additional feedback/hints are available when the leaner rolls mouse over error. Only one learner saw this. Learners can try again if they press retry button, **none** of the learners realised this. Currently the system does not encourage learners to seek additional feedback or try incorrect exercise again.

Note: Once a learner has completed an exercise, if they double click on forward button, they will not receive feedback.

Some exercises caused confusion 😕

In general users found the exercises relevant, interesting and engaging. They say they enjoyed the interactive nature of screens e.g. Drag, click, drop-down etc. However some screens did cause confusion and users were unsure how to proceed.

These were: Money screen (Pre-test listening), Signs Screen, Football Screen (Pre-test Reading), Envelope Screen (Pre-test Writing), Revolving cards Screen (Learner units).

Design 🕲 🕲 🕲

All users complimented the overall design of system. They liked the colours, size of text and space between words and thought images and pictures were interesting and useful for completing exercises.





Content 😊 😊 😊

All learners said that they thought content was relevant and appropriate to their level of studies. The website did not contain anything that was unexpected or intimating. When learners understood the instructions, they completed the majority of exercises correctly.

Audio 🕲 🕲

All learners found the audio support useful and helpful. They easily understood the audio and liked the tone and speed of the automated voice. Learners found the audio particularly helpful when written instructions were not immediately clear. However, two learners did not see some of the smaller audio icons and in one of pre-test reading exercise (signs screen) they listened to audio in order to find answers as opposed to working them out by reading the screen.





Appendix 1 – Questionnaire

WriteOn

Privacy

* A Note On Privacy

The data collected through this questionnaire is anonymous. The record kept of your questionnaire responses does not contain any identifying information about you unless a specific question in the questionnaire has asked for this. In this study we may record additional data such as video footage, screen recordings or audio data. While we aim to take all measures necessary to keep this data anonymous, publications or reports to clients may contain samples of this data (e.g., pictures, videos or audio sequences). By participating in this study, you agree that such data may be published and reported.

Do you agree with this policy?

Please choose *only one* of the following:

Yes

No

What will happen today? During this session, we will ask you to do three things: During this session, we will ask you to do three things: 1. Answer some questions about yourself and your experience with computers 2. Go to the website and try some of the learning units 3. Answer some more questions of what you thought about the website If you get stuck or need any help, please just call for help. Introduction Please write your answer here: "Here you

Please choose *only one* of the following:

male

female

*How old are you?

Please choose *only one* of the following:

- 16 or under
- 17-32
- 33-48
- 49-64
- □ 65 or over

General Computer Use

*How long have you been using computers?

Please choose *only one* of the following:

- Less than 6 months
- between 6 months and a year





v > v

🗖 over a year

*How often do you use computers?

Please choose *only one* of the following:

- Daily
- ^D Weekly
- ¹¹ Monthly
- [□] Couple times a year
- ^D Never

What type of computers devices do you use?

Please choose the appropriate response for each item:

	Daily	Weekly	Monthly	Couple times a year	Never
Desktop computer					100
Laptop					
Mobile phone (without internet)					
Mobile device with internet					
mp3 player/ipod					

What type of computer applications do you use?

Please choose the appropriate response for each item:

				Couple times a	
	Daily	Weekly	Monthly	year	Never
Office packages such as word, excel	-			100	
etc.					
Email					
grahics -photos etc.					
Internet - search/Information					
Internet - purchase on-line					
Internet - communication	-				
Internet - sharing					
Games	-				
E-learning/on line learning					
skpe					

Previous Experience

What is your highest level of education?

Please choose *only one* of the following:

- [©] Primary level
- [□] Junior Cert or equivalent
- Leaving Cert of eqivalent
- Trade or Professional qualification
- College Course
- ¹² University Degree
- □ Other





Have you used NALA services before and if yes, please let us know what services?

Please write your answer here:

Have you used www.writeon.ie before?

Please choose *only one* of the following:

- [□] Yes
- ^{II} No
- 🗖 unsure

Activitiy We would like you to imagine the following situation. You are interested in improving your reading and writing skills, so you telephoned NALA. A lady in NALA recommended that you try the on-line course called Write ON. Please now go to that website <u>www.writeon.ie</u> and log on. Good luck! Usability

How Useful is this website?

		strongly disagree			strong) agree
	This website meets my needs				
	It does everything I would expect it to do				
	This website allows me to do the things I want to do				
low Easy to	o use is this website?				
low Easy to	use is this website? Please choose the appropriate response for	or each iten	<u>r</u>		
low Easy to		or each iten strongly disagree	<u>r</u>		strong) agree
ow Easy to		strongly	<u>r</u>		
low Easy to	Please choose the appropriate response for	strongly disagree			agree
low Easy to	Please choose the appropriate response for It is easy to use this website	strongly disagree			agree

Is this website easy to Learn?

Please choose the appropriate response	se for each iter	<u>n:</u>		
	strongly disagree			strongly agree
It is easy to learn how to use this website				





I learned who to use this website			
quickly			
I can easily remember how to use this website			

Satisfaction : How Satisfied are you with this website?

Please choose the appropriate response for each item:

friend/colleauge		 	
I would recommend this website to a			
I like how this website looks			
This website annoys me			
This website works the way that I want it to work			
I like this website			
	strongly disagree		strongly agree

Please let us know what you think of this on-line course

r each item	1.		
strongly disagree	<u></u>		stro agi
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		strongly disagree	

Feedback (Final Section)

What did you like most about this tool?

Please write your answer here:

What did you dislike most about this tool?











Appendix 2 User Instructions

The following instructions were provided on a print-out to Learners, prior to testing. If users were unsure about tasks or ran into difficulty, observers intervened.

Activity 1

Please log-in to website www.writeon.ie Write down your password Select 'Word's section and go through that.

Activity 2

Log out of system Log back in with your password Select Edutainment button Select News item – note down news item

Then go back to main screen (first screen) and start course where you stopped.

Good luck!