# APPENDIX C

Phase 2.2 Cognitive Lab "Think Aloud" Protocol

Cognitive Lab Observation Notes

## **ATC21S Cognitive Lab "Think Aloud" Protocol**

#### **PREPARATION**

#### **Checklist:**

Parent consent letter signed.
Think aloud record form with unique student ID.
Computer with touchpad and optional mouse.
Voice and screen recording software.
Internet access.
Two different colored pens.

#### Remember:

- Sit behind the student but not in their personal space.
- If the student is silent for more than 5 seconds, say "**Keep talking.**"
- If the student is talking too quietly, say "Please speak louder."
- If the student is not reading the questions aloud, ask him/her to do so: "Please read the questions out loud."
- Be sure that the student is actually typing her/his responses, not just talking: "Please enter your response." If the student is having trouble entering responses and talking simultaneously, have the student talk first, then enter her/his responses.
- If the student asks you what to do because s/he does not understand a question, tell her/him: "Do whatever you normally do when you take a test." You should not help them solve the problem.
- Be attentive with body language by head nodding and occasional, "um hm's" in response to students.
- **DO NOT** tell the student if s/he got an answer right or wrong.
- **DO NOT** tell the student if s/he he did well/poorly on the activity.
- **DO NOT** show bias for certain questions or item formats (e.g., Do not say anything like, "This is not a very good problem." OR "Problems like these don't test many 21<sup>st</sup> century skills.")

#### **INTRODUCTION – Read this to students**

"We asked for your help today because we want to know what you think about when you work on work on an assessment of information and communication technology skills. In order to do this I am going to ask you to THINK ALOUD as you work on the different problems. What I mean by think aloud is that I want you to tell me EVERYTHING you are thinking from the time you first see the screen until you click on the NEXT button. I would like you to talk aloud CONSTANTLY from the time I present the assessment until you finish. I don't want you to try to plan out what you say or to try to explain to me what you are saying. Just act as if you are alone in the room speaking to yourself. It is most important that you keep talking. If you are silent for any long period of time I will ask you to talk.

I will sit over here, but I cannot help you during the assessment. If you stop talking at any point, I'll remind you to 'Keep talking.' If your voice becomes too quiet for the microphone, I'll ask you to 'Please speak louder.' If you feel uncomfortable or don't wish to continue, you can stop the assessment at any time.

Do you understand what I want you to do?

First I want you to practice talking out loud. I want you to say everything you are thinking as you play an online game. The online game that I want you to play is similar to the kind of experience you will have in the assessment. We will use the game to practice thinking out loud. Remember to say out loud everything that you might say to yourself silently and to talk CONSTANTLY as you play the game. You can start now."

[Link to game for the think aloud practice: http://pbskids.org/dragonflytv/games/game\_planetary.html

"Your goal is to launch needed parts to the target. Change the angle, amount of force and launch."

After a couple of minutes playing the game and talking out loud, give the student feedback. Tell the student if he needs to speak more. You may need to model thinking aloud in order to help the student understand what to do.

#### THINK ALOUD INTERVIEW

(Appendix C Observation Notes will be used in conjunction with this part of the protocol)

#### [Turn on voice and screen recorder.]

#### Prompts:

- "Please keep talking."
- "Please speak louder."

Do not ask the student any other questions or prompt the student in any other way.

#### What to do:

- 1. Fill out the think aloud record form. Listen carefully to what the student is saying.
  - a. ICT skills targets
    - i. Indicate Yes or No, Did you see evidence of student using specified ICT skill?
    - ii. Briefly summarize evidence that led to your decision.
  - b. Usability issues
    - i. Indicate yes or no, Did you see evidence that the student had difficulty using the technology or interface?
    - ii. Briefly summarize the usability issues encountered.
  - c. Screen Specific questions
    - i. Indicate Yes or No whether specific behavior for screen was witnessed? (e.g., Did student make tags in the concept map for Webspiration?)
  - d. Comments
    - i. Summarize any issues, student comments or behaviors not mentioned above. Did students do something unexpected? Express delight or frustration?
    - ii. Keep a record of when you did not understand what the student was doing or on screens where the student seemed to struggle. When the student has completed the scenario, you will have the opportunity to ask the student about these things.

#### **FOLLOW-UP INTERVIEW**

[Use different colored pen to record student responses to follow-up interview questions.]

#### **Interview Questions**

Log in to the assessment site.

## Review of Problematic Questions/Issues

Tell the student we are going to look at a few of the screens from the module so that we can improve the ICT Literacy assessment. Use your notes to choose the screens where you did not understand what the student was doing or the screens where the student seemed to struggle.

• Some prompts: What do you think this task is asking you to do? How could we make the instructions more clear? How could we make the wording more clear?

### Overall Impressions – last page of coding documents

- 1. Have you ever taken an online test like this before? Yes/No
  - o Was it similar to this assessment? How were the questions different?
  - 2. On a scale of 1 to 4, where 1 is very bad and 4 very good, how would you rate this assessment? Indicate 1-4
    - o What factors contributed to your score?
  - 3. Did you feel like you knew what you were supposed to do to complete all of the tasks? Yes/No
    - o Please explain your response
  - 4. Do you think this assessment allows you to show you skills in using information and communications technology? Yes/No
    - o Explain why or why not.

WRAP-UP	
Stop the audio recorder.]	
At the completion of the interview, thank the student for her/his participation: "Than	nk you very
nuch, That's it for today."	

## APPENDIX C - Observation Notes for:

- Webspiration
- Second Language Chat



☐ Open to first scre	en				
☐ Locate menu and	naviga	tion but	tons to p	previous page and	l next page
Skills Applied:					
ICT Consumer		$Y\square$		$N\square$	
ICT Producer		$Y\square$		$N\square$	
ICT Social Capital		$Y\square$		$N\square$	
ICT Intellectual Ca	pital	$Y\square$		$N\square$	
Teach Aid:	$Y\square$		$N\square$		
<b>Usability Issues:</b>	$Y\square$		N□		
Describe Issues:					

Tasks:

Tasks:

**Comments:** 

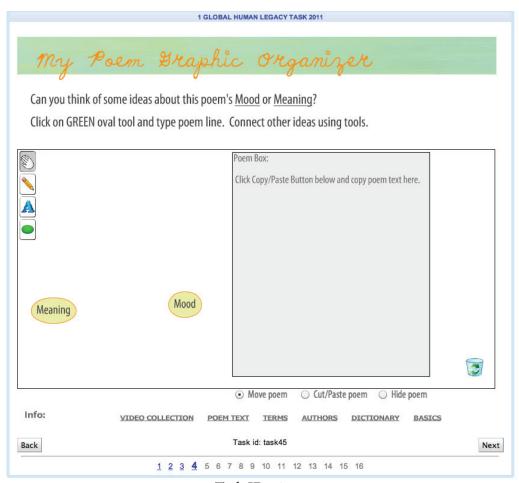


Task ID: 165

☐ Find link to read	poem to	ext		
Skills Applied:				
ICT Consumer		$Y\square$		$N\square$
ICT Producer	$Y\square$		$N\square$	
ICT Social Capital		$Y\square$		$N\square$
ICT Intellectual Ca	pital	$Y\square$		$N\square$
Teach Aid:	Υ□		N□	
<b>Usability Issues:</b>	Υ□		N□	
Describe Issues:				

1 GLOBAL HUMAN LEGACY TASK 2011	
My Poem Web-spiration	
View movie about poem in Video Collection below. HOW? Help Podcast.	
List something speaker in movie REMEMBERS:	
VIDEO COLLECTION POEM TEXT TERMS AUTHORS DICTIONARY BASICS	
Back Task id: task132	Next
<u>1</u> <u>2</u> <u>3</u> 4 5 6 7 8 9 10 11 12 13 14 15 16	

Tasks:					
☐ Navigate to video o	☐ Navigate to video collection (view Podcast for help)				
☐ Find Poem video					
☐ Note what speaker	☐ Note what speaker remembers in box provided				
Skills Applied:					
ICT Consumer		$Y\square$		$N\square$	
ICT Producer		$Y\square$		$N\square$	
ICT Social Capital		$Y\square$		$N\square$	
ICT Intellectual Capital		$Y\square$		$N\square$	
Teach Aid:	Υ□		N□		
<b>Usability Issues:</b>	Υ□		N□		
Describe Issues:					



Task ID: 45

Tasks:  ☐ Use screen tools	to organ	ize conc	cept maj	p
Skills Applied:				
ICT Consumer		$Y\square$		N□
<b>ICT Producer</b>		$Y\square$		$N\square$
ICT Social Capital		$Y\square$		$N\square$
ICT Intellectual Ca	pital	$Y\square$		$N\square$
Teach Aid:	Υ□		N□	
<b>Usability Issues:</b>	Υ□		N□	
Describe Issues:				

	1 GLOBAL HUMAN LEGACY TASK 2011
My Po	own two questions that you have about the poem.
First question	n:
Second ques	stion:
Use for	VIDEO COLLECTION POEM TEXT TERMS AUTHORS DICTIONARY BASICS
information:	
information:	Task id: task46

Tasks:				
☐ Type 2 questions	in boxe	s provid	led	
Skills Applied:				
ICT Consumer		$Y\square$		$N\square$
ICT Producer		$Y\square$		$N\square$
ICT Social Capital		$Y\square$		$N\square$
ICT Intellectual Ca	pital	$Y\square$		$N\square$
Teach Aid:	$Y\square$		$N\square$	
<b>Usability Issues:</b>	Υ□		N□	
Describe Issues:				

			1 GLOE	BAL HUMAN LEG	GACY TASK 2011	
	My Po		d about this p	poem:		
					Most Useful	
	Has the author h	ad a difficult l	ife?		1	
	What is a water	hyacinth?			2	
	Where can I get	a water hyaci	nth?		3	
	How can something grow in water?				4	
	Does the author swim?	like water? Ca	an he or she		5 Least Useful	
	Use for information:	VIDEO COL	LECTION POEM	TEXT TER	MMS AUTHORS DICTIONARY	BASICS
	Back			Task id: tas		Next
Tasks:					1 12 13 14 15 16	
□ Rank 5 q	uestions tated differentiat	ed by age		Task ID:	: 100	
Skills Appli	ed:					
ICT Consur	ner	Υ□	N□			
ICT Produc	er	$Y\square$	N□			
ICT Social (	Capital	$Y\square$	N□			
	tual Capital	Υ□	N□			

**Teach Aid:** 

**Usability Issues:** 

**Describe Issues:** 

 $Y\square$ 

 $Y\square$ 

 $N\square$ 

 $N\square$ 

1 GLOBAL HUMAN LEGACY TASK 2011
My Poem  Please reflect on your poem.  For each statement below, select your opinion.
Select an Answer ▼ I liked this poem.
Select an Answer  I feel I understood this poem pretty well.  Select an Answer  I think I might recommend this poem to teachers to use with other students.
Select an Answer  T think I might recommend this poem to my friends to read.
Use for VIDEO COLLECTION POEM TEXT TERMS AUTHORS DICTIONARY BASICS information:
Back Task id: task48 Next
<u>1</u> <u>2</u> <u>3</u> <u>4</u> <u>5</u> <u>6</u> <u>7</u> 8 9 10 11 12 13 14 15 16
Task ID∙ 48

Tasks:
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	Eval	luate	poem	using	dropd	lown	menus
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## **Skills Applied:**

ICT Consumer	$Y\square$	$N\square$
ICT Producer	$Y\square$	$N\square$
ICT Social Capital	$Y\square$	$N\square$
ICT Intellectual Capital	$Y\square$	$N\square$

Teach Aid:	$Y\square$	$N\square$

Usability Issues:	$Y \square$	$N\square$
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**Describe Issues:** 

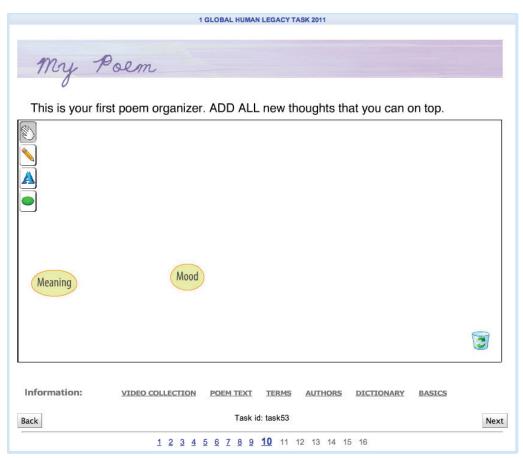
	1 GLOBAL HUMAN LEGACY TASK 2011	
My Poem	Webspiration	
Religi	A Webspiration Graffiti Wall has been shared with you. Login and add your ideas:	
	Note: There is no team 3., login: team2 and password: team2pass	
Back	Task id: task167	Next
	<u>1 2 3 4 5 6 7 8</u> 9 10 11 12 13 14 15 16	

Task ID: 167

Tasks:									
□ Note login and password									
☐ Go to Webspiration Graffiti Wall									
Graffiti wall urls, logins, and passwords differentiated by team									
Skills Applied:									
ICT Consumer		$Y\square$		$N\square$					
ICT Producer		$Y\square$		$N\square$					
ICT Social Capital	1	$Y\square$		$N\square$					
ICT Intellectual C	ICT Intellectual Capital Y□ N□								
Teach Aid:	$Y\square$		$N\square$						
<b>Usability Issues:</b>	$Y\square$		$N\square$						
Describe Issues:									

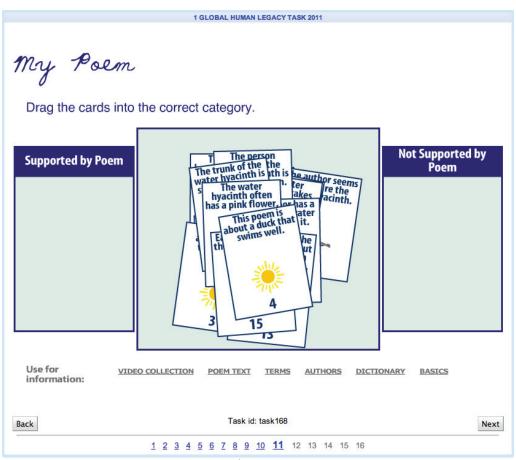
1 GLOBAL HUMAN LEGACY TASK 2011
Upload your Graffiti Wall  In Webspiration go to Document>Download As Inspiration Document. Save the file to your desktop. Upload here.
Click the UPLOAD button to select a file.
Back Task id: task133 Next
<u>1 2 3 4 5 6 7 8 <b>9</b></u> 10 11 12 13 14 15 16

Tasks:									
☐ Upload Graffiti Wall following instructions									
Skills Applied:									
ICT Consumer		$Y\square$		$N\square$					
ICT Producer	$Y\square$		$N\square$						
ICT Social Capital	$Y\square$		$N\square$						
ICT Intellectual Capital		$Y\square$		$N\square$					
Teach Aid:	$Y\square$		$N\square$						
<b>Usability Issues:</b>	$Y\square$		N□						
Describe Issues:									



Task ID: 53

<b>Tasks</b> :  ☐ Use screen tools to update poem organizer							
Skills Applied:							
ICT Consumer		Υ□		N□			
ICT Producer		$Y\square$		$N\square$			
ICT Social Capital		$Y\square$		$N\square$			
ICT Intellectual Capi	tal	$Y\square$		$N\square$			
Teach Aid:	Υ□		N□				
Usability Issues: Describe Issues:	Υ□		N□				



Task ID: 168

Tasks:
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Ш	501	rt cai	rd	state	ments	by	cat	tego	ry
*(	ard	text	is	differ	entiat	ed	bv a	age	

#### Skills Applied

Skins Applied:				
ICT Consumer		$Y\square$		N□
<b>ICT Producer</b>		$Y\square$		$N\square$
ICT Social Capital		$Y\square$		$N\square$
ICT Intellectual Capital		$Y\square$		$N\square$
Teach Aid:	Υ□		N□	
<b>Usability Issues:</b>	Υ□		N□	

## **Comments:**

**Describe Issues:** 

1 GLOBAL HUMAN LEGACY TASK 2011
Time to Explore! Make a Movie
Find a poem you like online. Can you figure out how to make a three-minute movie about why you like it?
HOW? Podcast Help.
Use <u>Screentoaster</u> . Login: "savemovie" Password: "savemovie"
Copy your Screentoaster link above and click the submit button.
CANNOT DO
Back Task id: task43 Next
1 2 3 4 5 6 7 8 9 10 11 <b>12</b> 13 14 15 16

Tasks:								
☐ Choose a poem from favoritepoem.org								
☐ Make a 3-minute movie using Screentoaster (follow Podcast help)								
☐ Submit Screentoas	ter link							
Skills Applied:								
ICT Consumer		$Y\square$		$N\square$				
ICT Producer		$Y\square$		$N\square$				
ICT Social Capital		$Y\square$		$N\square$				
<b>ICT Intellectual Cap</b>	ital	$Y\square$		$N\square$				
Teach Aid:	Υ□		N□					
Usability Issues: Describe Issues:	Υ□		N□					

1 GLOBAL HUMAN LEGACY TASK 2011						
Poetry Collaboration Evaluation  Please reflect on your experience collaborating with others about the poem.						
How do you prefer to participate in collaboration sessions? Choose all that apply.						
☐ I like to share my ideas and see what others think of them. ☐ I like to lead the discussion.						
□ I like to give feedback on other people's ideas.						
□ I like to help record ideas generated by the group.						
□ I like to listen to the discussion.						
□ I don't like to participate in these types of collaborations.						
Back Task id: task56 Next						
1 2 3 4 5 6 7 8 9 10 11 12 <b>13</b> 14 15 16						

Tasks:  ☐ Evaluate self in collaborative role ☐ Check preferences							
Skills Applied:							
ICT Consumer		Υ□		N□			
ICT Producer		$Y\square$		$N\square$			
ICT Social Capital		$Y\square$		$N\square$			
ICT Intellectual Cap	ital	$Y\square$		$N\square$			
Teach Aid:	Υ□		N□				
Usability Issues: Describe Issues:	Υ□		N□				

Webspiratio	n			
			1 GLOBAL HUMAN LEGACY TAS	SK 2011
	,			Evaluation  h others about the poem.
		nave improved th		Totalers about the poem.
	Back		Task id: task58	Next
		1 2 3	4 5 6 7 8 9 10 11 12 Task ID: 58	<u>13</u> <u>14</u> 15 16
	the collaboratior gestions for impr	-	Task ID. 36	
Skills Appli	ed:			
ICT Consu	mer	$Y\square$	N□	
ICT Produc	cer	Υ□	N□	
ICT Social	Capital	Υ□	N□	

**Usability Issues:** 

**Describe Issues:** 

**Teach Aid:** 

**ICT Intellectual Capital** 

 $Y\square$ 

 $N\square$ 

 $N\square$ 

 $Y\square$ 

 $Y\square$ 

 $N\square$ 

1 GLOBAL HUMAN LEGACY TASK 2011
Working with others What do you think?
Select an Answer   It was useful to check my answers with other people.
Select an Answer The collaboration increased my understanding of the poem.
Select an Answer The collaboration left me more confused about the poem.
Select an Answer     was able to help others understand the poem.
Select an Answer   I gained new ideas about the poem.
Back Task id: task57 Next
1 2 3 4 5 6 7 8 9 10 11 12 13 14 <b>15</b> 16

Task ID: 57

	Evaluate	benefit/no	benefit	from	collabo	orating	on	the	poem
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## **Skills Applied:**

ICT Producer  $Y \square$   $N \square$ 

ICT Social Capital  $Y \square$   $N \square$ 

ICT Intellectual Capital  $Y \square$   $N \square$ 

Teach Aid:  $Y \square$   $N \square$ 

**Usability Issues:**  $Y \square$   $N \square$ 

**Describe Issues:** 



Task ID: 134

Tasks:
N/A

Skills Applied:				
ICT Consumer		$Y\square$		N□
ICT Producer		$Y\square$		$N\square$
ICT Social Capital		$Y\square$		$N\square$
ICT Intellectual Ca	pital	$Y\square$		$N\square$
Teach Aid:	Υ□		N□	
<b>Usability Issues:</b>	Υ□		N□	
Describe Issues:				



Task ID: 107

Tasks:  ☐ Open screen. ☐ Locate menus an	d naviga	tion but	ttons	
Skills Applied:				
ICT Consumer		$Y\square$		$N\square$
ICT Producer		$Y\square$		$N\square$
ICT Social Capital		$Y\square$		$N\square$
ICT Intellectual Ca	pital	$Y\square$		$N\square$
Teach Aid:	Υ□		N□	
Usability Issues: Describe Issues:	Υ□		N□	

nguag	e Chat	
	3. GLOBAL SECOND LANGUAGE CHAT 2011	
	Chat Dire	ctions
	You will help a student practice chatting.	
Pic	ck a topic:	
0 0 0	Movie stars, or music bands A sport or sports team Your friend and their boyfriends and girlfriends How your schools are the same or different Something about which you would like to ask a question Animals you like and why A change you would like to see in the world	
Back	Task id: task162	Next
-	1 <b>2</b> 3 4 5 6 7	
	Task ID: 162	
opic		

Tasks:

☐ Pick a topic				
Skills Applied:				
ICT Consumer		$Y\square$		N□
ICT Producer		$Y\square$		N□
ICT Social Capital	$Y\square$		N□	
ICT Intellectual Ca	$Y\square$		N□	
Teach Aid:	Υ□		N□	
Usability Issues: Describe Issues:	Υ□		N□	

3. GLOBAL SECOND LANGUAGE CHAT 2011	
Chatzy	
Make a chat room for your partner:	
1. Go to Chatzy Room 3.	
2. Type in your name and choose a color.	
3. Click the 'Enter Room' button at the bottom	
Chatzy Video Excel Video Computer Use Basics	
Back Task id: task163	Next
<u>1 2 3</u> 4 5 6 7	
T. J. ID. 162	

Tasks:				
☐ Follow 3 consecu	tive inst	ructions	to creat	te a chatroom
*Native language ver	sion			
Skills Applied:				
ICT Consumer		$Y\square$		N□
ICT Producer		$Y\square$		$N\square$
ICT Social Capital		$Y\square$		$N\square$
ICT Intellectual Capital		$Y\square$		$N\square$
Teach Aid:	Υ□		N□	
<b>Usability Issues:</b>	$Y\square$		N□	
Describe Issues:				
Describe issues:				

	3. GLOBAL SECOND LANGUAGE CHAT 2011					
	Chat Directions					
	Click to Invite Your Chat Partner.					
	A Chat Invitation Table will appear. You will fill out the first three columns of the table. Type into the table your name and country, then paste in your chat room web address that you created in Chatzy.					
	Finally, copy the Secret Code shown in YOUR ROW of the table. Paste it below:					
	<u>Chatzy Video</u> <u>Spreadsheets Video</u> <u>Computer Use Basics</u>					
Back	Task id: task129 Next					
	<u>1 2 3 <b>4</b></u> 5 6 7					

				Task ID:	129	
Tasks:						
☐ Access and us	se Google sp	readshee	ets			
☐ Paste the chat	room web a	ddress cr	eated i	n Chatzy		
☐ Copy and pas	ste secret coo	de where	indicat	ted		
*Native language	version					
Skills Applied:						
ICT Consumer		$Y\square$		$N\square$		
ICT Producer		$Y\square$		$N\square$		
ICT Social Capi	tal	$Y\square$		$N\square$		
ICT Intellectual	Capital	$Y\square$		N□		
Teach Aid:	Υ□		N□			
<b>Usability Issues:</b>	Y□		N□			
·			_			
Describe Issues:						

ATC21S 21

			3. GLOBAL SECON	D LANGUAGE CHAT 2011		
Directions:  Now go to your chat ro  Selected topic appear In your OWN WORDS Likes and dislikes. Use numbers such as Describe people, place State feelings and em Report events in press Share experiences.  When you are done ch your chat room. Select Then use your Internet			ask your partner about:    Likes and dislikes.     Use numbers such as for price     Describe people, places or thing     State feelings or emotions.			5.0.00
		Chat		eadsheets Video id: task157	UPLOAD  Computer Use Basics	
	Back			4 5 6 7		Next
Tasks:			0.000	ID: 157		
☐ Facilitate cl	hat		Task	10. 13/		
	r's response on	checklist				
	nent on webpa		)			
		se to desktop	,			
Skills Applied	l <b>:</b>					
ICT Consume	er	Υ□	$N\square$			
ICT Producer	•	$Y\square$	$N\square$			
ICT Social Ca	pital	Υ□	N□			
ICT Intellectu	ıal Capital	Υ□	N□			
		_				
Teach Aid:	Υ□	N□				
Usability Issu	es: Y□	N□				
Describe Issue	es:					

ovona zangaago onat							
	3. GLOBAL SECOND LANGUAGE CHAT 2011						
		o understand or why not:					
	Were any of	these TRUE fo	or your chat?				
	□ Could no	ot understand	my partner.				
	□ My partn	er did not ans	wer my questions.				
	□ My partn	er's comment	s were too short.				
	□ My partn	er could not s	pell well enough to under	rstand.			
	L	Chatzy Vic	deo Spreadsheets Video	Computer Use Basics			
	Back		Task id: task117		Next		
			1 2 3 4 5 <b>6</b> 7 Task ID: 117				
			145K 1D. 117				
Tasks:							
☐ Rate Parti	ner						
Skills Applie	ed:						
ICT Consun	ner	$Y\square$	N□				
ICT Produce	er	$Y\square$	N□				
ICT Social C	Capital	$Y\square$	N□				
ICT Intellect	tual Capital	$Y\square$	N□				
Teach Aid:	Υ□	N□					

**Usability Issues:** 

**Describe Issues:** 

 $Y\square$ 

 $N\square$ 

Tasks:

☐ Close screen

**Comments:** 



Task ID: 128

Skills Applied:				
ICT Consumer		$Y\square$		N□
ICT Producer	$Y\square$		$N\square$	
<b>ICT Social Capital</b>	$Y\square$		$N\square$	
ICT Intellectual Ca	$Y\square$		N□	
Teach Aid:	Υ□		N□	
<b>Usability Issues:</b>	Υ□		N□	
<b>Describe Issues:</b>				