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**APPENDIX A****Self-evaluation survey of students' ICT and WebCT Skills**

This research study is purely for academic purpose and participation in it is voluntary. No data from this study will be used for any purpose other than this study. Further, the identity of the participants will not be revealed in the research report or any published reports that emanate from this study.

The purpose of this survey is to enable you do a self assessment of your skills in the use of a computer, the internet and WebCT. This is essential to provide you some training to take you to more or less the same level of skills required for this study. Please respond to each item as correctly as possible. Thank you for your time.

Student ID: .....

1) Your age: .....

*Please put a tick over the option that is most appropriate in your case.*

2) Gender:

<b>Female</b>	<b>Male</b>
---------------	-------------

3) Are you aware of the purpose of this research study and your role in it?

<b>Yes</b>	<b>No</b>
------------	-----------

4) Are you willing to participate in the study?

<b>Yes</b>	<b>No</b>
------------	-----------

5) Have you ever used WebCT in at least one course in the same semester or in a previous semester?

<b>Yes</b>	<b>No</b>
------------	-----------

6) What is your perception or view on the pedagogical benefits of WebCT?

<b>Positive</b>	<b>Neutral</b>	<b>No value</b>
-----------------	----------------	-----------------

7) Please rate the extent of your skills in the use of:

a) WebCT skills:

<b>Better than average</b>	<b>Average</b>	<b>Satisfactory</b>	<b>Poor</b>
----------------------------	----------------	---------------------	-------------

b) Basic computer skills?

<b>Better than average</b>	<b>Average</b>	<b>Satisfactory</b>	<b>Poor</b>
----------------------------	----------------	---------------------	-------------

c) Internet search engine (e.g., Google):

<b>Better than average</b>	<b>Average</b>	<b>Satisfactory</b>	<b>Poor</b>
----------------------------	----------------	---------------------	-------------

d) Email:

<b>Better than average</b>	<b>Average</b>	<b>Satisfactory</b>	<b>Poor</b>
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Thank you.



**APPENDIX B****Instrument for semi-structured interview**

Student ID: .....

1.	Stages	Responses		
		Yes	Limited	No
(i)	I was able to log on to WebCT without any hassles.			
(ii)	The online material was available and easily accessible anytime, anywhere I wanted.			
(iii)	My access and technical support concerns (e.g., occasional log in problems) were addressed adequately and in a timely fashion.			
(iv)	The learning material was also available offline (on CD or print-based)?			
<b>2. Participation</b>				
(i)	Did an appealing social climate that motivated you to collaborate with peers and interact with the teacher at ease in an environment of trust and intellectual openness exist?			
(ii)	The course was designed in such a way that I could feel confident with this new approach to learning and take responsibility for my own learning.			
(iii)	The teacher promoted collaborative and cooperative learning on WebCT.			
<b>3. Tasks (course structure &amp; content)</b>				
(i)	The syllabus/course outline available.			
(ii)	Were course expectations –goals, objectives and outcomes—clear?			
(iii)	Was the content presented in small chunks in a flexible, sequential manner, yet it allowed you to make a picture of the whole easily?			
(iv)	It made use of various learning facilitation media.			
(v)	Was the course structure simple to understand and it allowed you to find information you wanted easily?			
(vi)	It provided interesting, and intriguing cases and situations to improve my understanding.			
(vii)	Was the course properly designed to take advantage of the unique applications for online delivery (eg., interaction with peers, the teacher and other experts)?			
(viii)	Did the new content allow you to ‘make a bridge’ to your existing knowledge.			
(ix)	Were the tasks relevant in real-life contexts and appropriate to your educational goals?			
(x)	Were assignments and assessments clear, understandable and aligned with objectives?			

(xi)	Were there self-tests useful to help you to understand the concepts better and monitor yourself your progress in the course?			
(xii)	Were you provided with a module summary, glossary, and FAQs?			
(xiii)	Did you have access to additional enriching learning resources such as links to further reading?			
(xiv)	Were there external links for further reading and did these links work correctly?			
(xv)	Were the multiple modes of instruction (face-to-face, online-written, simulations, etc) beneficial in your understanding of concepts faster?			
<b>4. Engagement</b>				
<b>4.</b>	<b>Engagement</b>	Yes	Limited	No
4.1	<i>Student- content interaction</i>			
(i)	The teacher used WebCT to create a comfortable learning space.			
(ii)	Content was well structured to enable me to actively engage and manipulate it.			
(iii)	It provides learner communication and interaction opportunities (e.g. online discussion)			
(iv)	Did technology-supported interactive opportunities give you greater opportunity for analysis and reflection of content than it is normally possible in face-to-face classrooms?			
(v)	The content was interesting and it induced learning motivation.			
4.2	<i>Student-teacher interaction</i>			
(i)	The teacher responded timely up on my queries and concerns about the course.			
(ii)	There was sufficient feedback from the teacher to help me achieve my learning goals.			
(iii)	The teacher personalized interactions with students whenever necessary and possible.			
(iv)	The teacher provided 'virtual office' hours and I found it quite useful.			
(v)	The teacher encouraged me to interact with other students and also with him.			
4.3	<i>Peer-to-peer interaction</i>	Yes	Limited	No
(i)	Were there enough team-based activities that required collaboration with peers?			
(ii)	Was the course structured in such a way that way you could discuss my assignments with other students before actually attempting them?			
(iii)	Were your classmates glad in sharing ideas and helpful in your learning process?			
(iv)	Did you have ample opportunity to explore the view points of peers, collaborate with them and learn from different perspectives?			
4.4	<i>Student-interface interaction</i>	Yes	Limited	No

(i)	Was the 'look and feel' of the online pages consistent and appealing?			
(ii)	Was the course information displayed on the screen simple, easily readable, logical and in an 'easy to find' manner?			
(iii)	Was the interface easy to navigate knowing fully well where you came from and where you were heading to?			
(iv)	Was technology easy to use?			
<b>5.</b>	<b>Construction of knowledge (Learning)</b>	<b>Yes</b>	<b>Limited</b>	<b>No</b>
(i)	Did blended course activities contribute to your learning goals (vs. being a "waste of time")?			
(ii)	Did your technology-supported interaction with the teacher, peers and content help you to learn for understanding?			
(iii)	In your view, is trying to solve complex and ill-defined problems in collaborative and cooperative learning environments (social contexts) more beneficial than you trying it alone?			
<b>6.</b>	<b>Assessments</b>	<b>Yes</b>	<b>Limited</b>	<b>No</b>
(i)	Were assignments, assessments and self tests aligned with stated course objectives?			
(ii)	Were the assignments, assessments and self-tests useful to engage you in critical thinking rather than just means of rote memorization?			
(iii)	Were they useful in articulating what you learned and in reflecting on the process for understanding?			
(iv)	Did the assessment methods include strategies to recognise your individual contributions to group activities?			
(v)	Were you able to continually monitor your own progress through frequent self tests?			
(vi)	Did assignments, assessments and self tests provide opportunities for you to demonstrate or apply concepts and skills you have learned in alternatives ways?			
(vii)	Did you have an opportunity for peer assessment, and to actively and critically reflect on your learning?			
(viii)	Did rubrics and assessments accurately measure student achievement and learning?			
(ix)	Were assessments timely and fair? Did you receive assessment feedback/grades in a timely fashion?			
(x)	Did the teacher have performance monitoring strategies & intervention plans for student failure?			
<b>7.</b>	<b>Overall</b>	<b>Yes</b>	<b>Limited</b>	<b>No</b>
(i)	I found the course environment very motivational.			
(ii)	The course environment encouraged me to collaborate with my classmates.			

(iii)	The course was well organized and presented.			
(iv)	I could take control of the pace of my own learning.			
(v)	Taking this course increased my interest in online learning.			
(vi)	The instructor facilitated the course both online and face-to-face effectively.			
(vii)	The affordances of WebCT were useful to create an efficient learning environment, and it could enhance the level of my understanding of course content.			
(viii)	Throughout the course, the teacher has been enthusiastic about online teaching.			
(ix)	Overall this course was valuable.			

Open-ended questions:

a) All in all, does this new approach contribute towards your active learning?

.....  
.....

b) What do you like most and least about this approach to instruction?

.....  
.....

c) Please make suggestions on how to improve this course.

.....  
.....

## APPENDIX C

### Student satisfaction survey

Student ID: .....

	Items	SA	A	U	D	SD
1	The course was well organized in such way that both modes of delivery contributed towards achieving my learning goals in a complementary manner.					
2	Online course information was difficult to read and to find.					
3	The online interface was easy to navigate.					
4	Course expectations were not quite clear.					
5	The instructor communicated effectively.					
6	Amount of material covered and course workload was too much.					
7	Pace of the course was right.					
8	Self tests, assignments, and discussions did not contribute to understanding the material.					
9	Timely and adequate feedback was provided on assignments.					
10	The instructor facilitated the both face-to-face and online teaching and learning effectively.					
11	The instructor was not accessible to me online every time I have had a problem.					
12	The instructor was not tolerant of others' ideas and views.					
13	The instructor personalized interactions with me whenever necessary.					
14	The instructor did not adapt to students' instructional needs.					
15	The instructor provided several ways for students to demonstrate understanding of important course concepts.					
16	The instructor was not serious about encouraging students to interact with one another.					
17	The instructor used WebCT to facilitate thoughtful discussions.					
18	The blended approach provided a more efficient collaborative learning environment than it would have been possible in face-to-face or WebCT alone.					
19	This course improved my understanding of the content.					
20	The blended approach killed my interest in the course.					
21	The course was designed to allow me to take responsibility for my own learning.					
22	The instructor did not take any initiative in motivating me to ensure my attention to the learning materials and assignments.					
23	The blended approach used in this course was not valuable.					
24	The instructor did a good job.					
25	Technical support was not satisfactory.					

\*SA = Strongly Agree (5); A = Agree (4); U = Undecided (3); D = Disagree (2); SD = Strongly Disagree (1)

**APPENDIX D: Expert evaluation instrument**

	Items	Response		Comments
		YES	NO	
1)	Does the course provide adequate opportunities for:			
	Social presence:			
	Authentic learning:			
	Enhanced motivation:			
	Collaborative construction of knowledge:			
	Learner-centredness:			
	Meeting students' different learning needs:			
	Interaction among students and with the instructor:			
	Timely feedback:			
	Authentic assessment (with possibilities of automatic grading/ scoring):			
	Self tests and assignments that contribute towards effective learning:			
	Authentic assessment (with possibilities of automatic grading/ scoring):			
	Metacognition and reflection:			
	Cognitive conflict and complexity			
	Learner control:			
	Customisation:			
	Variation:			
	Additional resources (enriching as well as remedial):			
	Course evaluation and student feedback:			
2)	Is the online part easily accessible, and usable?			
3)	Is the student interface visually appealing and easy to navigate?			
4)	All in all, does this new approach contribute towards active learning?			

5) What do you like most and least about this course?

.....  
 .....

6) Please make suggestions on how to improve this course:

.....  
 .....

**APPENDIX E: Test results** (for test – retest reliability checking)

Student ID	Q.1	Q.2	Q.3	Q.4	Q.5	Q.6	Q.7	Q.8	Q.9	Q.10	Q.11	Q.12	Q.13	Q.14	Q.15	Q.16	Q.17	Q.18	Q.19	Q.20	Q.21	Q.22	Q.23	Q.24	Q.25	Mean 1	
P.1	5	5	4	4	5	2	2	4	3	5	5	4	5	3	4	5	4	4	4	5	4	4	4	4	4	5	4.12
P.2	5	5	4	4	5	4	4	4	5	4	5	4	5	2	4	5	5	4	2	4	5	5	4	5	4	4	4.28
P.3	5	5	5	5	5	3	3	4	5	5	5	5	5	4	4	4	5	4	4	5	5	5	5	5	4	5	4.56
P.4	5	5	5	5	5	2	2	3	5	5	5	4	5	4	5	5	4	5	4	5	4	4	4	4	5	4	4.36
P.5	5	3	5	5	3	4	4	2	4	3	4	4	4	4	3	4	4	5	5	3	4	5	4	4	4	4	3.96
P.6	5	4	5	5	4	4	4	5	4	4	4	4	4	4	4	5	5	4	5	4	3	5	3	3	5	4.24	
P.7	4	4	5	5	4	4	4	5	4	4	3	5	3	4	4	4	5	4	4	4	4	4	5	5	5	3	4.20
P.8	4	4	3	3	4	5	5	5	3	5	3	4	4	5	2	5	4	3	5	5	4	4	5	5	5	5	4.16
P.9	4	4	4	4	4	5	5	5	5	4	4	5	4	5	4	4	4	5	4	4	4	4	5	5	4	4	4.36
P.10	3	4	4	4	4	5	5	5	5	4	2	5	4	5	4	5	4	5	3	5	5	5	5	5	5	5	4.40
<b>Total</b>	45	43	44	44	43	38	38	42	43	43	40	44	43	40	38	46	44	43	40	44	42	47	44	44	44	44	<b>4.26</b>
<b>Mean</b>	4.50	4.30	4.40	4.40	4.30	3.80	3.80	4.20	4.30	4.30	4.00	4.40	4.30	4.00	3.80	4.60	4.40	4.30	4.00	4.40	4.20	4.70	4.40	4.40	4.40	4.40	<b>4.00</b>
<b>σ</b>	0.71	0.67	0.70	0.70	0.67	1.14	1.14	1.03	0.82	0.67	1.05	0.52	0.67	0.94	0.79	0.52	0.52	0.67	0.94	0.70	0.63	0.48	0.70	0.70	0.70		
<b>Mode</b>	5	4	4	5	4	4	4	5	5	4	5	4	4	4	4	5	4	4	4	4	5	4	5	5	5	5	

M= Mean; σ = Standard deviation

**APPENDIX F: Retest Results** (for test – retest reliability checking)

Student ID	Q.1	Q.2	Q.3	Q.4	Q.5	Q.6	Q.7	Q.8	Q.9	Q.10	Q.11	Q.12	Q.13	Q.14	Q.15	Q.16	Q.17	Q.18	Q.19	Q.20	Q.21	Q.22	Q.23	Q.24	Q.25	Mean 2	
P.1	5	5	4	4	5	3	2	4	4	5	5	4	5	3	4	5	5	4	4	5	4	4	4	4	4	4	4.20
P.2	5	5	4	4	5	4	4	4	4	4	5	4	5	2	4	5	4	4	2	4	5	5	4	5	4	4	4.20
P.3	5	5	5	5	5	3	3	4	5	4	5	5	5	4	3	4	5	4	4	5	5	5	5	5	4	5	4.48
P.4	5	5	5	5	5	3	3	3	5	5	5	4	5	4	5	5	4	5	4	5	4	5	4	5	5	5	4.52
P.5	4	3	5	4	3	4	4	2	4	3	4	3	4	4	3	4	4	4	5	3	4	4	3	4	3	3	3.68
P.6	5	4	5	4	4	4	4	5	4	3	4	3	4	4	4	5	4	4	5	4	3	5	3	3	4	4	4.04
P.7	4	4	5	4	4	4	4	5	4	4	3	5	3	4	3	4	5	4	4	4	4	4	4	5	4	3	4.04
P.8	4	4	3	3	4	5	5	5	4	5	3	4	4	5	3	5	4	3	5	5	4	4	5	5	5	5	4.24
P.9	4	4	4	4	4	5	5	5	5	4	4	4	4	4	4	4	4	5	4	4	3	4	5	4	4	4	4.20
P.10	3	4	4	4	4	5	5	5	5	4	2	5	4	5	4	5	4	5	3	5	5	5	4	4	5	5	4.32

**APPENDIX G****Final Student Survey**

Student ID	Q.1	Q.2	Q.3	Q.4	Q.5	Q.6	Q.7	Q.8	Q.9	Q.10	Q.11	Q.12	Q.13	Q.14	Q.15	Q.16	Q.17	Q.18	Q.19	Q.20	Q.21	Q.22	Q.23	Q.24	Q.25	M <sub>s</sub>	σ	Mode
1	5	4	5	3	5	5	5	5	5	5	5	5	5	3	2	5	5	5	5	5	5	5	5	5	3	4.60	0.87	5
2	2	1	5	5	5	4	2	5	5	5	2	5	5	5	5	5	5	5	5	5	5	5	5	5	3	4.36	1.25	5
3	4	5	3	5	5	5	3	5	5	5	5	5	5	5	5	5	5	5	3	5	5	5	4	4	5	4.64	0.70	5
4	4	1	5	5	4	2	5	5	5	5	3	3	5	2	2	5	5	5	5	5	5	5	5	5	4	4.20	1.26	5
5	4	5	5	3	4	5	2	5	5	5	5	5	5	5	5	5	5	5	5	3	5	5	5	3	5	4.56	0.87	5
6	5	4	4	5	4	3	5	5	5	5	5	4	3	5	3	5	5	5	3	5	4	5	5	3	4	4.36	0.81	5
7	4	5	5	5	5	2	5	2	5	5	3	5	5	2	4	4	5	5	5	5	4	4	3	5	5	4.28	1.06	5
8	5	5	4	2	5	4	3	5	5	5	5	4	4	5	4	4	5	5	5	4	5	3	5	5	5	4.44	0.82	5
9	3	5	5	5	5	2	5	4	5	5	4	5	4	4	4	4	5	5	3	5	3	4	3	5	5	4.32	0.90	5
10	5	5	3	5	4	2	3	4	3	5	5	5	5	5	2	5	5	5	5	5	4	5	5	5	4	4.36	0.99	5
11	4	5	5	5	5	5	5	3	5	5	5	4	5	5	4	4	5	5	3	4	3	5	5	5	4	4.52	0.71	5
12	5	5	5	2	3	3	4	5	5	5	5	5	4	3	4	5	5	5	5	5	5	5	4	5	5	4.48	0.87	5
13	3	5	3	2	4	4	4	5	3	5	5	5	5	5	4	5	5	5	4	5	4	4	4	5	5	4.32	0.85	5
14	5	3	5	5	5	4	2	3	5	5	5	4	5	4	3	4	5	5	4	4	4	5	5	5	5	4.36	0.86	5
15	4	2	4	5	4	4	4	5	5	5	5	5	4	4	4	5	5	5	2	5	4	5	5	5	5	4.40	0.87	5
16	5	4	5	3	4	4	4	5	5	5	5	4	4	4	4	5	5	5	4	5	4	5	5	5	5	4.52	0.59	5
17	5	2	4	5	5	4	3	5	3	5	4	4	5	4	4	5	5	5	2	4	4	4	4	5	5	4.20	0.91	5
18	5	4	5	3	4	3	4	5	5	5	4	4	4	4	4	4	5	5	4	5	4	4	5	5	5	4.36	0.64	4
19	5	5	5	4	5	4	4	4	5	5	4	4	4	5	4	2	5	5	5	4	4	4	5	5	5	4.48	0.71	5
20	5	4	5	4	4	4	2	4	5	5	3	4	5	4	4	5	5	5	2	5	4	5	5	5	5	4.32	0.90	5
21	5	4	5	4	4	2	3	4	5	5	4	4	4	4	4	4	5	5	4	4	4	5	5	5	4	4.24	0.72	4
22	5	4	5	2	4	4	4	4	5	5	4	4	4	4	4	5	5	5	3	4	4	5	5	4	4	4.24	0.72	4
23	4	4	5	4	5	4	4	4	4	4	4	4	4	4	4	5	4	4	5	4	4	4	5	4	4	4.20	0.41	4
24	5	4	4	5	4	4	4	4	4	4	4	4	4	4	4	4	4	4	5	4	4	4	5	4	4	4.16	0.37	4
25	4	4	4	4	5	4	4	4	4	4	4	4	4	4	2	4	4	4	5	4	5	4	4	5	4	4.12	0.60	4
26	4	4	5	4	4	5	4	4	4	4	4	4	5	4	4	4	4	5	4	4	4	4	4	4	4	4.16	0.37	4
27	5	4	4	5	4	4	4	4	4	4	4	4	4	4	4	4	4	5	4	4	4	5	5	4	4	4.20	0.41	4
28	4	4	5	4	4	5	4	4	4	4	4	4	5	4	4	4	4	5	4	4	4	4	5	4	4	4.20	0.41	4
29	4	4	5	4	4	4	4	5	4	4	4	4	4	4	4	4	4	5	4	4	4	4	4	4	5	4.16	0.37	4
30	5	4	4	4	4	4	4	5	4	4	4	4	4	4	4	4	4	5	4	4	4	4	4	5	5	4.20	0.41	4
31	2	4	5	5	4	3	5	4	4	4	5	4	4	4	4	5	4	4	4	5	5	5	4	4	4	4.20	0.71	4
32	5	4	5	4	5	5	4	4	4	4	4	5	4	4	4	4	4	4	4	4	5	5	4	4	4	4.28	0.46	4
33	4	5	4	5	4	5	4	4	4	4	4	4	3	4	4	4	4	4	4	5	5	5	4	4	4	4.20	0.50	4
34	4	5	4	4	5	5	5	4	4	4	4	5	4	4	3	5	4	4	4	5	4	4	5	4	5	4.32	0.56	4
35	5	3	4	5	5	3	3	4	4	4	4	4	5	4	5	4	4	4	5	5	4	5	5	4	4	4.24	0.66	4
36	4	2	4	5	4	5	5	4	5	4	4	5	4	4	4	5	4	4	5	4	4	4	4	4	4	4.20	0.65	4
37	5	4	4	2	4	4	4	4	5	4	5	4	5	5	4	5	4	4	5	4	4	5	4	4	4	4.24	0.66	4
38	5	5	5	5	5	5	5	5	5	4	4	5	5	5	2	4	4	4	4	5	4	5	5	4	4	4.52	0.71	5
39	5	5	4	4	4	4	4	5	2	4	5	4	5	5	5	5	4	4	4	4	5	4	5	5	5	4.40	0.71	5
40	5	5	5	3	4	5	5	5	4	4	5	5	5	5	5	5	4	4	4	5	5	4	5	5	5	4.64	0.57	5
Total	176	161	180	163	175	157	157	174	177	182	171	174	178	164	153	183	180	190	161	179	170	187	179	179	178	4.33		5
M <sub>i</sub>	4.40	4.03	4.50	4.08	4.38	3.93	3.93	4.35	4.43	4.55	4.28	4.35	4.45	4.10	3.83	4.58	4.50	4.75	4.03	4.48	4.25	4.68	4.48	4.48	4.20			
Mode	5	4	5	5	4	4	4	4	5	5	4	4	5	4	4	5	5	4	4	5	4	5	5	5	5			
σ	0.81	1.10	0.65	1.05	0.54	0.97	0.92	0.70	0.75	0.50	0.72	0.53	0.60	0.81	0.84	0.50	0.55	0.44	0.86	0.55	0.54	0.47	0.64	0.60	0.60			

M<sub>i</sub>= Item Mean; σ = Standard deviation; M<sub>s</sub>= Student Mean;



## APPENDIX H

### Consent Form

Research project:- Blended learning: A case study

- 1) I ..... hereby state that I am willing to be a subject of the research study carried out by P. Y. Thomas on blended learning in my Biology course at the University of Botswana.
- 2) I understand that the purpose of the research is to understand the effectiveness of a Blended Learning Model (LAPTEL) designed and developed in the research by P. Y. Thomas.
- 3) I acknowledge that I understand:
  - the aims, methods, and anticipated benefits, and possible risks of the research study;
  - that the findings and results will be used in his doctoral thesis, and also may be reported in scientific and academic journals;
  - that my participation in the research study is purely voluntary;
  - that I am free to withdraw my consent at any time during the study, in which case my participation in the research will immediately cease and any information obtained from me will not be used.

Signature: .....

Date: .....

## APPENDIX J

### Screenshots from the Final study

i) The course home page (Final study)

The screenshot shows the Blackboard Learning System interface in a Mozilla Firefox browser. The browser address bar displays the URL: <http://learning.lib.bw.edu/webct/urw/K5116001.tp0/cobaltMainFrame.dowebct>. The page title is "Blackboard Learning System - Mozilla Firefox".

The interface includes a navigation menu on the left with sections for "Course Tools" (Course Content, Announcements, Assessments, Assignments, Calendar, Chat, Discussions, Goals, Learning Modules, Mail, Roster, Search, Syllabus, Web Links, Who's Online) and "Designer Tools" (Manage Course, File Manager, Grading Forms, Selective Release). The main content area is titled "Your location: Home Page" and contains several links: "Welcome Message: Start here", "Self tests", "FAQ", "GLOSSARY", "Weeks 1-9: Genetics", and "Weeks 10-12: Genetic engineering". The top right corner shows "My eACCESS | Accessibility" and "BIOLOGY - BIO245".

ii) Learning materials (final study)

The screenshot shows the Blackboard Learning System interface in a Mozilla Firefox browser, displaying the "Weeks 10-12: Genetic engineering" section. The browser address bar displays the URL: <http://learning.lib.bw.edu/webct/urw/K5116001.tp0/cobaltMainFrame.dowebct>. The page title is "Blackboard Learning System - Mozilla Firefox".

The interface includes the same navigation menu as the previous screenshot. The main content area is titled "Your location: Home Page > Weeks 10-12: Genetic engineering" and contains a list of learning materials: "1. Course details", "2. Introduction to Genetic engineering", "3. Genetic engineering in different organisms", "4. The cloning technologies", "5. Issues around cloning", and "6. Summary & Further reading". The top right corner shows "My eACCESS | Accessibility" and "BIOLOGY - BIO245".

## iii) Course calendar (final study)

Blackboard Learning System | SafeAssign | My eACCESS | Accessibility | Help | Log Out

Build | Teach | Student View | BIOLOGY - BIO245

Your location: Calendar > View Month

Calendar

Add Entry | Create Printable View | Calendar Settings | Display New Entries | Delete All | Delete a Range

Month | Week | Day | View: This course only

October 2009

	Sun	Mon	Tue	Wed	Thu	Fri	Sat
View Week	27	28	29	30	1	2	3 Course Starts with online ice breaker
View Week	4 Online self-introduction continues	5 Discussion starts	6 First E2f meeting	7 Discussion ongoing Self test 1	8 Discussion ongoing Self test 1	9 Virtual office: 5-6 pm	10
View Week	11 Reflection 1 due (based on discussion)	12 Virtual office: 5-6 pm	13 E2f meeting	14 Self test 2	15 Self test 2	16 Virtual office: 5-6 pm	17
View Week	18 Reflection 2 due	19 Virtual office: 5-6 pm	20 Personal views on human cloning: Reflective Journal Self test 3	21 Self test 3	22 E2f meeting	23 Virtual office: 5-6 pm	24 Self test 4 Online student survey
View Week	25 Self test 4	26	27	28	29	30	31

## iv) Reflective journal: Personal views on human cloning

Blackboard Learning System | Accessibility | Help

Build | Teach | Student View | BIOLOGY - BIO245

Description (click to collapse)

Topic Type: Journal  
Graded: Yes (Numeric out of 10.0)  
Peer Review: No  
Posting Restrictions: Allow post and reply  
Access: Private  
User Identification: [redacted]

My Journal

Create New Entry | View

Select All | Deselect All

Subject: Personal views on human cloning  
Author: Student, [redacted]  
20 October 2009 9:53 AM  
This should not be allowed because ethically it is wrong

Comments | Forward

Comments

1 Author: Course Tutor  
20 October 2009 11:07 AM  
Why do you think so?

Subject: Personal views on human cloning  
Author: Student, [redacted]  
21 October 2009 10:03 AM  
It is like someone wants to live for ever, it is against all religions

Comments | Forward

(Name of the student has been deleted)

**APPENDIX K***Self-tests used in the study***Self-test 1**

- 1) What is the correct reason why cloning animals could help farmers?  
A: they could be made to obey the farmers better  
B: they would never get sick  
C: they could provide higher qualities of meat, fur, etc  
D: they would have better dispositions
  
- 2) What is the cleavage site?  
A: the site that a clone starts growing from  
B: the place where two DNA join  
C: the site that a virus would most likely attack  
D: the place where restriction enzymes isolate a certain gene
  
- 3) Why would a deceased household pet be up for cloning today?  
A: to generate more pets for the world  
B: to return it to a mournful owner  
C: to keep the world exactly the same  
D: to make sure its species doesn't die out
  
- 4) Why are some people so desperate about human cloning that they are willing to go underground to accomplish it  
A: because they want to make money off of it  
B: because they believe cloning would bring them success and fame  
C: because they want to break the law  
D: because some want cloning to fix their problems dealing with death, injury, etc.
  
- 5) What is recombinant DNA?  
A: DNA from animals  
B: DNA from humans  
C: DNA  
D: DNA that has a part that took on a gene from a different place
  
- 6) Who led the cloning of Dolly?  
A: Gregor Mendel  
B: Ian Wilmut  
C: Daniel Nathans  
D: Albert Einstein
  
- 7) Why has human cloning not legally occurred yet?  
A: because people do not have any idea how to accomplish it  
B: humans cannot be cloned  
C: it has been banned in many countries and is thought by some to be unmoral  
D: no one has wanted to try it

- 8) What does DNA stand for?
- A: Deadly Noxicating Acid
  - B: Deadly Noxicating Acid
  - C: Deoxyribonucleic Acid
- 9) What do you put a DNA strand into when you want to clone?
- A: Semen
  - B: Embryo
  - C: Cell
- 10) Why would a deceased household pet be up for cloning today?
- A: to generate more pets for the world
  - B: to return it to a mournful owner
  - C: to keep the world exactly the same
  - D: to make sure its species doesn't die out

## Self test 2

- 1) One cell could theoretically launch a thousand clones.

A: True

B: False

*The answer is: true. It takes a whole cell to start a clone - but of course there are millions of genetically identical cells in an animal organ.*

- 2) Dolly the Sheep was grown in a test-tube.

A. True

B. False

*The answer is: false. Although the cloning process takes place in lab conditions, the embryo has to be transferred into a surrogate mother to develop into a whole animal.*

- 3) Cloned animals have the same personality as their 'parent'.

A. true - clones are by definition identical

B. false - personality isn't solely determined by genes

*The answer is: false. Cloned animals may or may not have the same personality as their parent - personality is partly determined by the environment.*

- 4) Close examination of Dolly the Sheep suggests that clones may:

A. have homosexual tendencies

B. age prematurely

C. need abnormally high amounts of food to survive

*The answer is: B. This is not certain, but Dolly's chromosomes have the resemblance of chromosomes from a much older sheep, possibly the age of her "mother".*

- 5) Scientists in the UK are aiming to clone the first human (hint: more than one answer may be correct).

A. True

B. False - it's illegal

C. If they are they're not telling anyone

*The answer is: B and C. No scientists in the UK are openly working on human cloning - it's banned, so if they are, they're doing it under wraps.*

- 6) If you cloned yourself - the clone would be the same age as you are.

A. True

B. False

*The answer is: false. If you cloned yourself, the clone would begin like any other baby as a single-celled organism and take nine months before it was born.*

- 7) The cloning process makes sperm redundant!

A. True

B. False

*The answer is: true. The cloning process requires no male input - Dolly was cloned from a female sheep.*

- 8) What is the name of the first sheep to be cloned from an adult sheep?

A. Polly

- B. Dolly
- C. Molly

**Self test 3:** Online quiz available at: [http://nature.ca/genome/04/041/factorfake\\_e.swf](http://nature.ca/genome/04/041/factorfake_e.swf)

**Self test 4:**

What are the different types of cloning?

**Answer:**

1. DNA cloning using recombinant DNA technology

*...the transfer of a DNA fragment of interest from one organism to a self-replicating genetic element such as a bacterial plasmid. The DNA of interest can then be propagated in a foreign host cell.*

2. Reproductive cloning

*Reproductive cloning is a technology used to generate an animal that has the same nuclear DNA as another currently or previously existing animal.*

3. Therapeutic cloning

*The goal of this process is not to create cloned human beings, but rather to harvest stem cells that can be used to study human development and to treat disease.*