

IMPLEMENTING WEBCASTS INTO ANATOMY & PHYSIOLOGY TO ENGAGE VISUAL LEARNING

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INTRODUCTION

- Anatomy & Physiology (HUM BIOL 204) is a core course required of all Human Biology majors.
- An informal survey has been conducted on the first day of class for the past four years; the majority of A&P students are self-proclaimed visual learners.
- Limited visual resources (videos and tutorials) have been provided as supplemental learning aids in this course.



METHODS

- Students completed the Index of Learning Styles Questionnaire (a 44-item questionnaire that can be submitted and automatically scored; developed by R.M. Felder and B.A. Soloman of North Carolina University) and submitted a hardcopy of their results.
- Index of Learning Styles Questionnaire



ACTIVE VS. REFLECTIVE

- Active learners tend to retain and understand information best by doing something active with it-- discussing or applying it or explaining it to others.
- Reflective learners prefer to think about it quietly first.



SENSING VS. INTUITIVE

- Sensing learners tend to like learning facts.
- Intuitive learners often prefer discovering possibilities and relationships.



VISUAL VS. VERBAL

- Visual learners remember best what they see-- pictures, diagrams, flow charts, time lines, films, and demonstrations.
- Verbal learners get more out of words--written and spoken explanations.



SEQUENTIAL VS. GLOBAL

- Sequential learners tend to gain understanding in linear steps, with each step following logically from the previous one.
- Global learners tend to learn in large jumps, absorbing material almost randomly without seeing connections, and then suddenly "getting it."



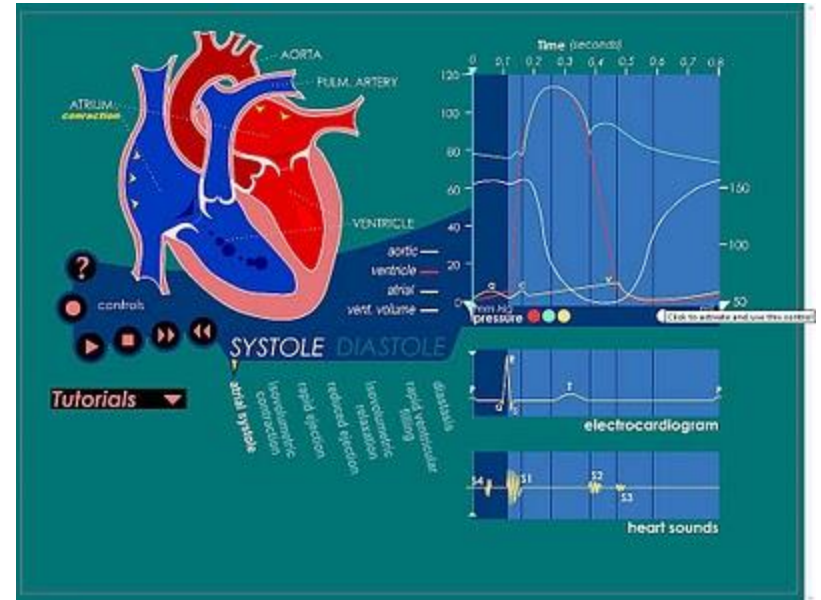
METHODS

- Constructed videos using an iPad application known as ScreenChomp by TechSmith Corporation and provided access to online tutorials.
- Each video or tutorial was posted on the course D2L webpage; students were required to watch the video or tutorial once, but had unlimited access throughout the semester.
- Laboratory or lecture multiple-choice or true/false exam questions were identified and addressed by each video or tutorial.



CARDIAC CYCLE TUTORIAL

- Course objective:
 - Understand the cardiovascular events that occur in the heart during one heart beat (i.e. direction of blood flow, pressure changes, volume changes, heart sounds, conduction of electrical activity).



HYPOTHESES

- Students identified as visual learners on the ILS questionnaire will “visit” the videos more often than students identified by other learning styles.
- There will be a correlation between the number of video “visits” and success on identified exam questions.
- Student success on identified exam questions will improve from fall 2011 to spring 2012.

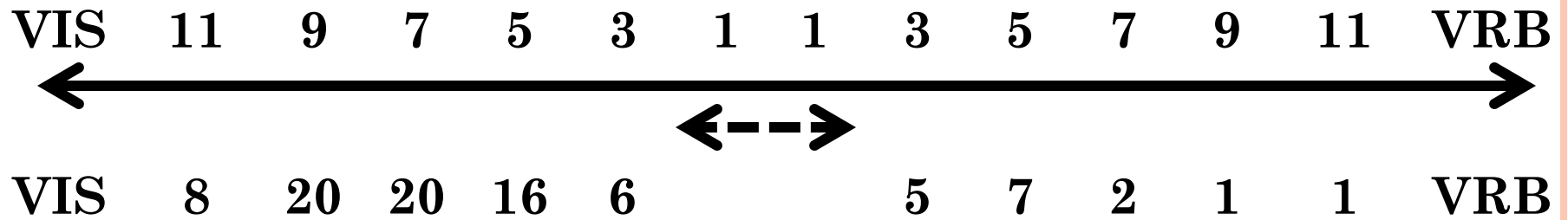


QUESTIONNAIRE: SAMPLE OF INDIVIDUAL RESULTS

Results for:

ACT											X		REF
	11	9	7	5	3	1	1	3	5	7	9	11	
						<--	-->						
SEN	X												INT
	11	9	7	5	3	1	1	3	5	7	9	11	
						<--	-->						
VIS	X												VRB
	11	9	7	5	3	1	1	3	5	7	9	11	
						<--	-->						
SEQ			X										GLO
	11	9	7	5	3	1	1	3	5	7	9	11	
						<--	-->						

RESULTS



RESULTS:

NUMBER OF VIDEO/TUTORIAL VISITS

Visual Learner Video/Tutorial "Visits" (% of students)

	1st visit	2nd visit	3rd visit	4th visit
Get Body Smart - Skeletal System	100	79	40	11
Cardiac Cycle Tutorial	94	88	46	17
Cranial Nerve Tutorial	97	60	23	8
Sympathetic Nervous System Anatomy Video	100	97	58	7
Skeletal Muscle Physiology Video	90	77	54	15

Verbal Learner Video/Tutorial "Visits" (% of students)

	1st visit	2nd visit	3rd visit
Get Body Smart - Skeletal System	94	50	25
Cardiac Cycle Tutorial	100	75	12
Cranial Nerve Tutorial	100	62	0
Sympathetic Nervous System Anatomy Video	81	56	25
Skeletal Muscle Physiology Video	88	75	18



SAMPLE OF RESULTS:

Cardiac Cycle Tutorial Questions (% of successful student responses)

	1 visit	2 visits	3 visits	4 visits
Question 1	56	82	82	90
Question 2	44	66	86	84

Skeletal Muscle Physiology Questions (% of successful student responses)

	1 visit	2 visits	3 visits	4 visits
Question 1	28	40	37	68
Question 2	62	78	84	91



SAMPLE OF RESULTS:

Cardiac Cycle Tutorial Questions (% of successful student responses)

	Fall 2011	Spring 2012
Question 1	67	74
Question 2	83	85

Skeletal Muscle Physiology Questions (% of successful student responses)

	Fall 2011	Spring 2012
Question 1	56	68
Question 2	82	87



CONCLUSIONS

- Students identified as visual learners on the ILS questionnaire visited the videos more often than students identified by other learning styles. Time spent during each “visit” was not documented.
- There was a correlation between the number of video “visits” and success on identified exam questions.
- Student success on identified exam questions improved from fall 2011 to spring 2012.
- Three of the dimensions on the ILS were neglected during this study and could have contributed to the overall results.

