Significant and Substantial Outcomes Assessment SLO assessment

Janet Fulks

Part 1: PLO - Biology Department Allied Health Assessment

Part 2: ILO - Critical Thinking Institutional Learning Outcome Assessment

Part 3: ILO resources online at Bakersfield College -

https://committees.kccd.edu/content/bakersfield-college-institutional-learning-outcomes-%E2%80%93-examples-excellent-assessment

Part 4: Integrated Planning based upon Program Review with embedded SLO outcomes and Pathways - https://committees.kccd.edu/bc/committee/programreview

Pathways work has re-focused our outcomes on Program Outcomes

- Program Learning Outcome – Example Biology Program – California Ed code describes a Program as any series of courses that end in a terminal certificate, degree or outcome
- When we reviewed our department from an outcome angle we realized we had 3 distinctly different outcomes and pathways. The courses did not overlap or even provide credit to the others and the employment routes were very different
  - Biology Major's Pathway
  - Biology Allied Health** - Human Biology Pathway
  - General Education Biology – General education component of GE pathway
- Courses in pathway were connected by requirements and the outcomes needed to be integrated.

Pathways has refocused our ILO perspective

- Provided collaboration across the departments – Communication rubric for presentations
- Directed Supplemental Instruction funding based upon critical thinking outcomes
- Become the basis of collaboration for transfer
-

Assessment of one Biology Allied Health Pathway PLO

- Identify medical problems and apply appropriate and effective solutions. Students will be able to analyze a clinical situation using anatomical terminology, select the correct technology to use for further examination, analyze and determine a diagnosis when pathology is described, and create a plan of action. Embedded Test Questions in Final Exams)

Assessment Report Grid: Allied Health Pathway (Bio 32,33,16,34,18)   Semester: Fall 2012 Mr. Gomez Bone Injury

Sections	Instructor	Total # of students	B32 Q1		B32 Q2		B32 Q3		B33 Q4		B33 Q5		B33 Q6		B34 Q7		B34 Q8		B34 Q9		B16 Q10		B16 Q11		B16 Q12	
			#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%	#	%
Bio 32	**All** B32	123	102	83%	89	72%	114	93%	82	67%	79	64%	49	40%	42	34%	39	32%	61	50%	41	33%	37	30%	55	48%
	Wt ave.		**Q1-3: 83%-35% = 48%**						**Q4-6: 57%-43% = 14%**						**Q7-9: 38%-32% = 6%**						**Q10-12: 36%-29% = 7%**					
Prev SemSame Assess.			69%						55%						37%						33%					
Bio 33	**All** B33	83	71	86%	50	60%	63	76%	47	57%	77	93%	56	67%	39	47%	40	48%	48	91%	32	39%	29	35%	37	45%
	Wt ave.		**Q1-3: 74%-35% = 39%**						**Q4-6: 72%-43% = 29%**						**Q7-9: 51%-32% = 19%**						**Q10-12: 39%-29% = 10%**					
Prev Sem Same Assess.			70%						67%						44%						42%					
Bio 16	**All** B16	42	32	76%	21	50%	29	69%	20	48%	40	95%	37	88%	14	33%	20	48%	22	52%	39	93%	19	45%	37	88%
	Wt ave.		**Q1-3 65%-35% = 30%**						**Q4-6: 77%-43% = 34%**						**Q7-9: 52%-32% = 20%**						**Q10-12: 75%-29% = 46%**					
Prev Sem Same Assess.			61%						78%						45%						66%					
Bio 34	**All** B34s	36	27	75%	24	67%	21	58%	16	44%	31	86%	19	53%	24	67%	25	69%	20	56%	23	64%	11	31%	25	69%
	Wt ave.		**Q1-3: 67%-35% = 32%**						**Q4-6: 61%-43% = 18%**						**Q7-9: 64%-32% = 32%**						**Q10-12: 55%-29% = 26%**					
Prev Sem Same Assess.			73%						72%						65%						56%					
Bio 18	**All** B18	50	39	78%	38	76%	42	84%	33	66%	44	88%	27	54%	28	56%	10	20%	24	48%	4	8%	5	10%	9	18%
	B18d	28	15	52%	5	18%	18	64%	15	54%	22	76%	9	32%	7	25%	10	36%	8	29%	13	46%	13	46%	9	32%
	Wt ave.		**Q1-3 67%-35% = 32%**						**Q4-6: 64%-43% = 21%**						**Q7-9: 37%-32% = 5%**						**Q10-12: 23%-29% = -6%**					
Prev Sem Same Assess.			68%						62%						29%						44%					

Header note: #of correct answers in class(##) / % of students answering correctly (%%)

Sections	Instructor	Total # of students	#of correct answers in class(##), % of students answering correctly (%%)																			
			Questions from **Bio32**								Questions from **Bio33**						Questions from **Bio16**						
			Q1		Q2		Q3		Q4		Q5		Q6		Q7		Q8		Q9		Q10	
			##	%%	##	%%	##	%%	##	%%	##	%%	##	%%	##	%%	##	%%	##	%%	##	%%
Bio 32	All	197	125	63%	78	40%	172	87%	177	90%	84	43%	63	32%	56	28%	73	37%	39	20%	22	11%
	Newton	89	56	63%	29	33%	79	89%	76	85%	37	42%	29	33%	19	21%	18	20%	17	19%	10	11%
	Stierle/N	37	20	54%	23	62%	30	81%	32	86%	13	35%	11	30%	12	32%	8	32%	6	28%	3	8%
	Ganster/N	53	36	68%	16	30%	47	89%	51	96%	25	47%	16	30%	22	42%	16	30%	12	23%	7	13%
	Stierle	18	13	72%	10	56%	16	89%	18	100%	9	50%	7	39%	3	17%	5	28%	4	22	2	6%
	Wt ave.	197	**Q1-4: 70 %**								**Q5-7: 34%**						**Q8-10: 23%**					
Prev Semester Same Assess.			67% (2012 assessment -50%)								37% (2012 assessment 36%)						20% (2012 assessment 24%)					
Bio 33	All	174	116	67%	71	41%	130	75%	128	74%	97	56%	106	61%	84	48%	90	52%	53	30%	21	12%
	Fulks	72	51	71%	29	40%	56	78%	50	69%	48	67%	46	64%	34	47%	39	54%	20	28%	4	6%
	Tavoni	102	65	64%	42	41%	74	73%	78	76%	49	48%	60	59%	50	49%	51	50%	33	32%	17	17%
	Wt ave.	174	**Q1-4: 64 %**								**Q5-7: 55%**						**Q8-10: 31%**					
Prev Semester Same Assess.			**58%** (2012 assessment 47%)								**55%** (2012 assessment 53%)						**40%** (2012 assessment 27%)					
Bio 16	All	100	59	59%	33	33%	65	65%	76	76%	47	47%	80	80%	73	73%	67	67%	49	49%	66	66%
	Peat	51	33	65%	19	37%	33	65%	41	80%	23	45%	37	73%	35	69%	38	75%	32	63%	30	59%
	Fulks	49	26	53%	14	29%	32	65%	35	71%	24	49%	43	88%	38	78%	29	59%	17	35%	36	73%
	Wt ave.		**Q1-4: 58%**								**Q5-7: 67%**						**Q8-10: 61%**					
Prev Semester Same Assess.			**55%** (2012 assessment 41%)								**58%** (2012 assessment 51%)						**67%** (2012 assessment 50%)					
Bio 18	All	60																				
	Ashraf/Stierle	60	28	47%	14	23%	40	67%	38	63%	16	27%	16	27%	28	47%	18	30%	16	27%	11	18%
	Wt ave.		**Q1-4: 50%**								**Q5-7: 33%**						**Q8-10: 25%**					
Prev Semester Same Assess.			No info F15 (2012 assessment 50%)								No info F15 (2012 assessment 39%)						No info F15 (2012 assessment 22%)					

Case Study Assessment (2012)

- **Some of the material in this assessment maybe covered in classes that you have not yet taken. Relax. Use your current knowledge and skills to do your best.**

- **Directions:**
    - Carefully read the following paragraph describing Mr. Gomez, his accident and his subsequent medical treatment.
    - Then answer the attached 12 multiple choice questions. Refer back to the patient information as needed to clarify your answers.

Case Study

Mr. Gomez, a 32 yr. old male suffered injuries in an automobile accident and was taken to a local hospital. Upon arrival at the emergency room Mr. Gomez was conscious but rapidly breathing as a result of a great deal of pain. Blood loss was minimal. Abdominal bruising indicated the individual was not wearing a seatbelt and was struck in this area while being tossed around inside the vehicle. A broken bone was observed protruding through his skin. Vital signs were taken. X-rays and blood work were ordered.

X-Ray results:

Lab Results:

- Glucose……….Normal
- AST & ALT……Elevated
- Amylase… ……Normal
- BUN…………….Normal

Histology Slide
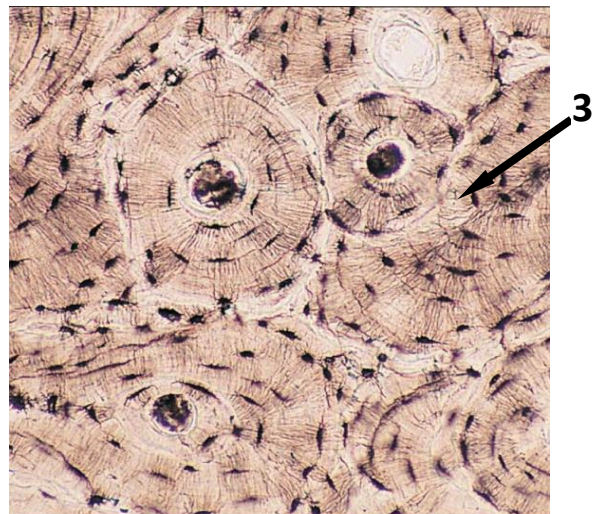
Vital-Signs

- BP 160/110 mm HG
- Pulse: 105 bpm
- Respirations: 20 / min.
- Temperature: Normal

4

Use your scantron or clicker device to record your answers for the following questions

1. According to Mr. Gomez's x-ray, which of the following bones was fractured?
   a. Fibula
   b. Femur
   c. Tibia
   d. Humerus
   e. Radius

2. A specimen of tissue from the injury site was sent to histology for microscopic examination. The slide appears in the patient record. Which specific cell type <u>on this slide</u> would you expect to be most active in the laying down of new tissue layers.
   a. Osteoclasts
   b. Motor neurons
   c. Muscle fibers
   d. Osteoblasts
   e. Simple squamous epithelial cells

3. Referring to the histology slide in the patient's record, name the <u>open area</u> at arrow #3.
   a. Lumen
   b. Central canal
   c. Osteon
   d. Nuclear pore
   e. Lacuna

4. At arrival in the ER, MR. Gomez's rapid breathing is most likely a result of
   a. Increased parasympathetic activity
   b. Increased sympathetic activity
   c. Increased thyroxine
   d. Increased secretin
   e. Increased EPO

5. Which of the following ions will play a crucial role in healing from this accident?
    a. HCO_3^{--}
    b. Na^+
    c. K^+
    d. Ca^{++}
    e. Cl^-

6. Which of the body defenses have been compromised by Mr. Gomez's injuries?
    a. The innate barriers
    b. B cell activity
    c. The adaptive functions
    d. Helper T cell (CD4) activity
    e. Phagocytosis

7. If hyperventilation continues, Mr. Gomez will most likely experience
    a. Metabolic alkalosis
    b. Respiratory acidosis
    c. Metabolic acidosis
    d. Respiratory alkalosis
    e. Anaerobic respiration

8. Blood tests indicate which of these internal organs may have been bruised:
    a. Adrenal glands
    b. Pancreas
    c. Liver
    d. Stomach
    e. Kidneys

9. The type of fracture Mr. Gomez has experienced would best be described
    a. Greenstick
    b. Closed
    c. Transverse
    d. Impacted
    e. Open

10. Four days after the surgery to repair the fracture, while Mr. Gomez was still immobilized in the hospital, the surgical site became infected and his white blood cell count was elevated. This kind of infection would be called a/an
    a. Traumatic infection
    b. Anaerobic infection
    c. Nosocomial infection
    d. Fungal infection
    e. Aerobic infection

11. The culture grew on MSA (Mannitol Salt Agar) and produced a yellow color change. These results indicate
    a. Fermentation of lactose
    b. Fermentation of mannitol
    c. A salt resistant organism
    d. Both a and c
    e. Both b and c

12. The isolate solidified the medium in a coagulase test the tube indicating the causative organism was
    a. *Streptococcus pyogenes*
    b. *E.coli*
    c. *Bacillus anthracis*
    d. *Staphylococcus aureus*
    e. *Clostridium tetani*

Diagram A

Right   Left

Diagram B

Right   Left
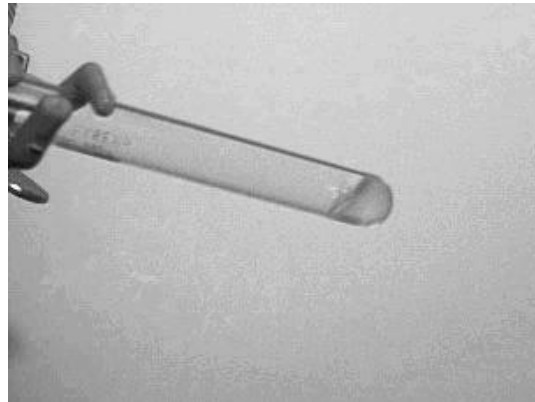
Allied Health Assessment Case Study 2016 Mr. Sanchez Case Study - You may write all over these pages.

Instructions: Read about Mr. Sanchez Answer the 10 scantron questions. Some information will be from classes you have not yet had .

Mr. Sanchez, a 62 yr. old male with no previous history of medical problems, reports to the Emergency Room (ER) at 11 PM with an acute onset of extreme pain located in the area of XXXXXX on diagram A.
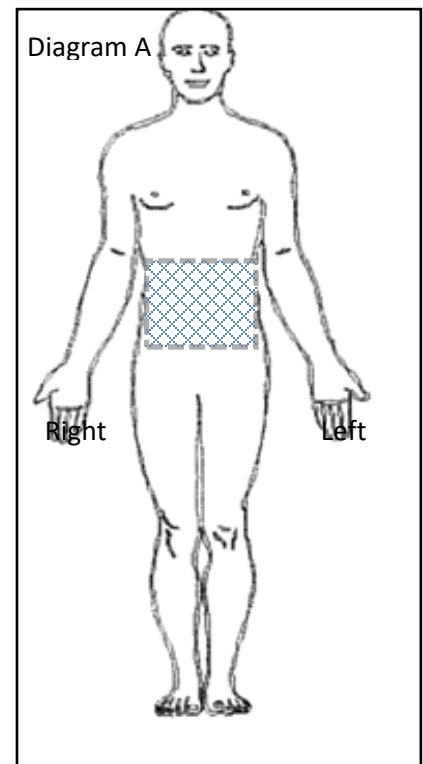
1. Using proper anatomical terminology, which of the following choices best describe the location of Mr. Sanchez's pain.
    A.   R and L iliac/inguinal regions
    B.   R and L lumbar regions
    C.   R and L hypochondriac regions
    D.   R and L upper quadrants
    E.   R and L lower quadrants

2. X-Ray studies reveal Mr. Sanchez has a perforated large intestine. Identify the specific tissue type that lines the lumen of the large intestine.
    A.   Pseudostratified ciliated columnar epithelium
    B.   Simple cuboidal epithelium
    C.   Simple columnar epithelium
    D.   Simple squamous epithelium
    E.   Stratified squamous epithelium

3. Emergency surgery is planned by making an incision on Diagram B to enter the abdomen. Which muscle has been cut during this process?
    A. Latissimus dorsi
    B. Latissimus abdomini
    C. Pectoralis major
    D. Rectus abdominis
    E. Gluteus medius

4. As part of his recovery, Mr. Sanchez will have a treatment regimen that will target multiple levels of structural organization. Based on your in-class study of this hierarchy, identify the correct sequence from the options below.
    A. Organ, organ system, cellular, chemical, tissue, organismal
    B. Chemical, cellular, tissue, organ, organ system, organismal
    C. Chemical, cellular, tissue, organismal, organ, organ system
    D. Organismal, organ system, organ, tissue, cellular, chemical

8
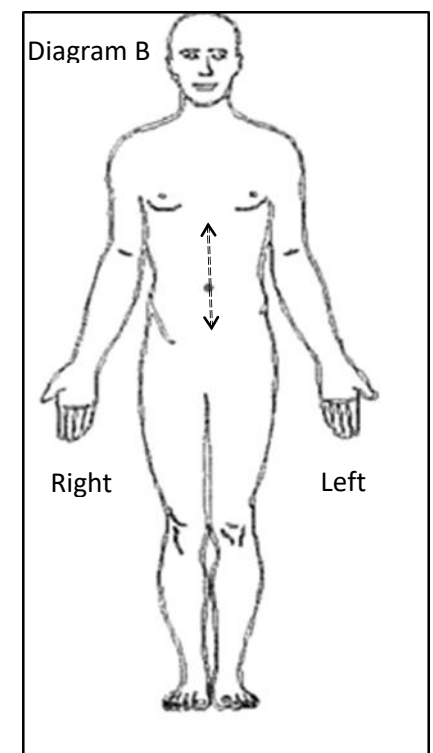
E. Tissue, cellular, chemical, organ, organ system, organismal

5. At the ER, the patient demonstrated an elevated BP of 180/120 mmHg due to extreme abdominal pain. These results indicate
   A. BP increase due to endocrine stimulation
   B. BP increase due to stimulation by the sympathetic pathway
   C. BP increase due to stimulation by the parasympathetic pathway
   D. A + B above
   E. A + C above

6. Blood drawn from Mr. Sanchez in the ER showed an elevated wbc count . A <u>normal</u> wbc range would be
   A. 500-1000 mm^3
   B. 1,000-5,000 mm^3
   C. 5,000-10,000 mm^3
   D. 10,000-50,000 mm^3
   E. 1,000,000-5,000,000 mm^3

7. During surgery Mr. Sanchez will have his sigmoid colon removed. As a result he will experience future decreases in
   A. Water absorption
   B. Protein absorption
   C. Lipid absorption
   D. Carbohydrate absorption
   E. None of the above

8. Upon surgical entry into the abdominal cavity, an inflamed perforated bowel is discovered with accompanying peritonitis and purulent exudate (pus). Which of the following is true of the pus specimen taken during the abdominal surgery?
   A. This represents a nonspecific, second line of defense in the body's immune response.
   B. The pus is consistent with the production of IgA which protects these kinds of internal cavities.
   C. The pus indicates the production of IgG which is specifically attacking the etiologic agents.
   D. Pus is usually consistent with viral infections.
   E. The cells in the pus are most likely producing interferons to fight off the infection.

9. Which of the following groups of bacteria would be possible infectious agents in the abdominal cavity subsequent to the perforated bowel?

> I.   Enterobacteriaceae
> II.   Enterococci
> III. Bacteroides and other anaerobes
> IV.   *Staphylococcus aureus*
> V.   *Streptococcus pyogenes*

A. I, II, and III
B. I, III, IV
C. I, II, IV
D. I, III, V
E. All of the above

10. One of the initial tests performed on a Gram Negative isolate from an abdominal culture taken as a result of a perforated bowel would be a(n)
A. Catalase test
B. Coagulase test
C. Oxidase test
D. MSA test
E. All of the above

Results of Biology Program Level Outcomes Assessment

1. Initially the sequence was converted from an Anatomy and Physiology stand-alone series, to an integrated series of Anatomy and Physiology 1 and Anatomy and Physiology 2.

2. Collaborative lab manuals were written. Lecture notes were developed among the program faculty.

3. New faculty were/are mentored and curriculum is reviewed annually with assessment results which are examined each semester.

4. Textbook selections changed in order to align curriculum. The Microbiology course is taught by system so as to review A&P content with each chapter and infections are organized by system, the way allied healthcare givers interact with infections (not taxonomy).

5. Initially course results were aggregated and some faculty refused to participate. Currently the faculty are asking to have each course disaggregated by name so they can discuss results and learn.

6. This does not impact faculty evaluation.

7. Current faculty thinking is that ultimately disaggregation by ethnicity will add complexity without adding much value. Ethnicity disaggregation is more important with regards to grades and success.

8. Success rates have increased and students appear to be retaining knowledge and skills across the program.

9. Other program level SLOs relate to skills and successful completion of the next program course sequence.

10. This has led to rich discussions, sharing of techniques and programmatic alignment. For instance, some types of questions are crafted to simulate the ones found on licensing exams.

Biol 32 Anatomy → Success Rate 56-57.5% → Biol 33 Anatomy → Success Rate 87-90% → Biol 16 Microbiolo → Success Rate 88-91.3% → Nursing Success Rate 95-98%

ILO Assessment - Tomorrow's Teaching and Learning - Mindsets Toward Learning

Has anyone ever told you there was something you were not capable of doing? Is there anything you think you are not capable of doing or learning? Read this.

Mindset and Intelligence

One thing about human intelligence is absolutely certain: it is malleable, meaning it can be changed through exposure to new information or even by looking at what you already know in a new way. There is no limit to what you can learn, and, contrary to what some may think, nobody's brain has ever been "filled." The brain continually changes by making new neuroconnections between its cells, which represent new knowledge or skills, and when this happens, we say someone has become smarter. It is possible for humans to become smarter all the time and in any area of study. Some subjects will be harder for you to learn than others, but learning in any area is possible. Intelligence is not a fixed quantity that you got at birth and are stuck with. You become smarter every day, and the intelligence you achieve in your lifetime is unknowable. That said, it does appear that your mindset about learning will have a heavy impact on how much you will learn - and just about everything else in your life.

Your mindset is your view about your own intelligence and abilities. This view affects your willingness to engage in learning tasks and how much, if any, effort you are willing to expend to meet a learning challenge. Dweck has spent more than 30 years researching learners' mindsets and their individual views of their intelligence. She noted that mindsets fall into two categories: "fixed mindsets" and "growth mindsets." A person with a fixed mindset "believes that intelligence is a fixed trait," despite hundreds of studies that have found otherwise. In this view, either you are smart in a given area or you are not; there is nothing you can do to improve in that area. Individuals with fixed mindsets believe their intelligence is reflected in their academic performance (Dweck, 2006). If a student doesn't do well in a class, it's because he or she is not "smart" in that area. Individuals with fixed mindsets mistakenly believe either that they shouldn't need to work hard to do well because the smart students don't have to (although when researchers asked students who consistently achieved high grades about their work, they reported working very hard at academic material) or that putting in the effort won't make any difference in the outcome ("I'm just not good at math"). In fact, individuals with fixed mindsets see putting in effort as indicating that they are not smart. They have falsely come to the conclusion that learning comes easy to the students at the top of the class and that they were born that way.

People with growth mindsets, in contrast, believe that intelligence grows as you add new knowledge and skills. Those with growth mindsets value hard work, learning, and challenges and see failure as a message that they need to change tacks in order to succeed next time. Thomas Edison is reported to have tried hundreds of times before he got the lightbulb to work. At one point, he was asked by a New York Times reporter about all his failures and whether he was going to give up. Edison responded, "I have not failed 700 times. I've succeeded in proving 700 ways how not to build a light bulb" (as cited in Ferlazzo, 2011). Shortly after this interview, he was successful, and we have all since benefitted from his growth mindset. Individuals with growth mindsets are willing to take learning risks and understand that through practice and effort-sometimes a lot of effort-their abilities can improve. Those with growth mindsets believe that their brains are malleable, that intelligence and abilities constantly grow, and that only time will tell how smart they will become.

Read the assigned text and respond the following in complete sentences.

Issues: What issue has the author identified and what is the author's position?
Support: Identify the author's arguments, evidence and opinions?
Evaluation: Take a position on the issue or problem and explain why.

Criterion	Mastery	Proficient	Competent	Emerging
Issues: What issue has the author identified and what is the author's position?	Clearly states the key issues and comprehensively identifies the author's main point.	States the issue and accurately identifies the author's main point or thesis.	States the issue but misses some key points. Indirectly or partially identifies the author's main point or thesis.	Unable to identify a problem. Fails to understand or describe the author's main point.
Support: Identify the author's arguments, evidence and opinions.	Skillfully recognizes and succinctly explains all relevant evidence to support the author's position.	Recognizes and clearly explains most evidence to support the author's position.	Recognizes and explains some evidence to support the author's position.	Very limited evidence identified or explained to support the author's position.
Evaluation: Take a position on the issue and explain why.	Articulates a well-reasoned and creative position.	Describes a well-defined position.	Partially describes a position other than repeating the author's position.	Unable to define their own position. May take the author's or someone else's.

Institutional Learning Outcome Assessment on Critical Thinking

The critical thinking evaluation tool was developed from an article about Mindsets based upon research by Dr. Dweck from Stanford (The excerpts are from Chapter 7: Mindsets Toward Learning, in the book, The New Science of Learning: How to Learn in Harmony With Your Brain, by Terry Doyle and Todd Zakrajsek. Published by Stylus Publishing, LLC. 22883 Quicksilver Drive, Sterling, Virginia 20166-2102. Copyright ©2014 by Stylus Publishing, LLC. http://www.styluspub.com/Books/Features.aspx).

The rationale for this assessment tool was founded upon a decision by faculty that the assessment tool itself, should be a learning activity. Faculty reviewed several "Mindset" articles as part of training for the BC Habits of the Mind (HoM) Program and determined that because 80% of the first-time students at BC were First-Generation Students this research represented important academic soft skills necessary as a critical thinking foundation. Classroom interventionists (faculty trained in HoM) were used to deliver the assessment to a wide variety of courses over a one week period. After reading the excerpt, the student worksheet and rubric were given to the students as an in-class assignment and delivered in online courses.
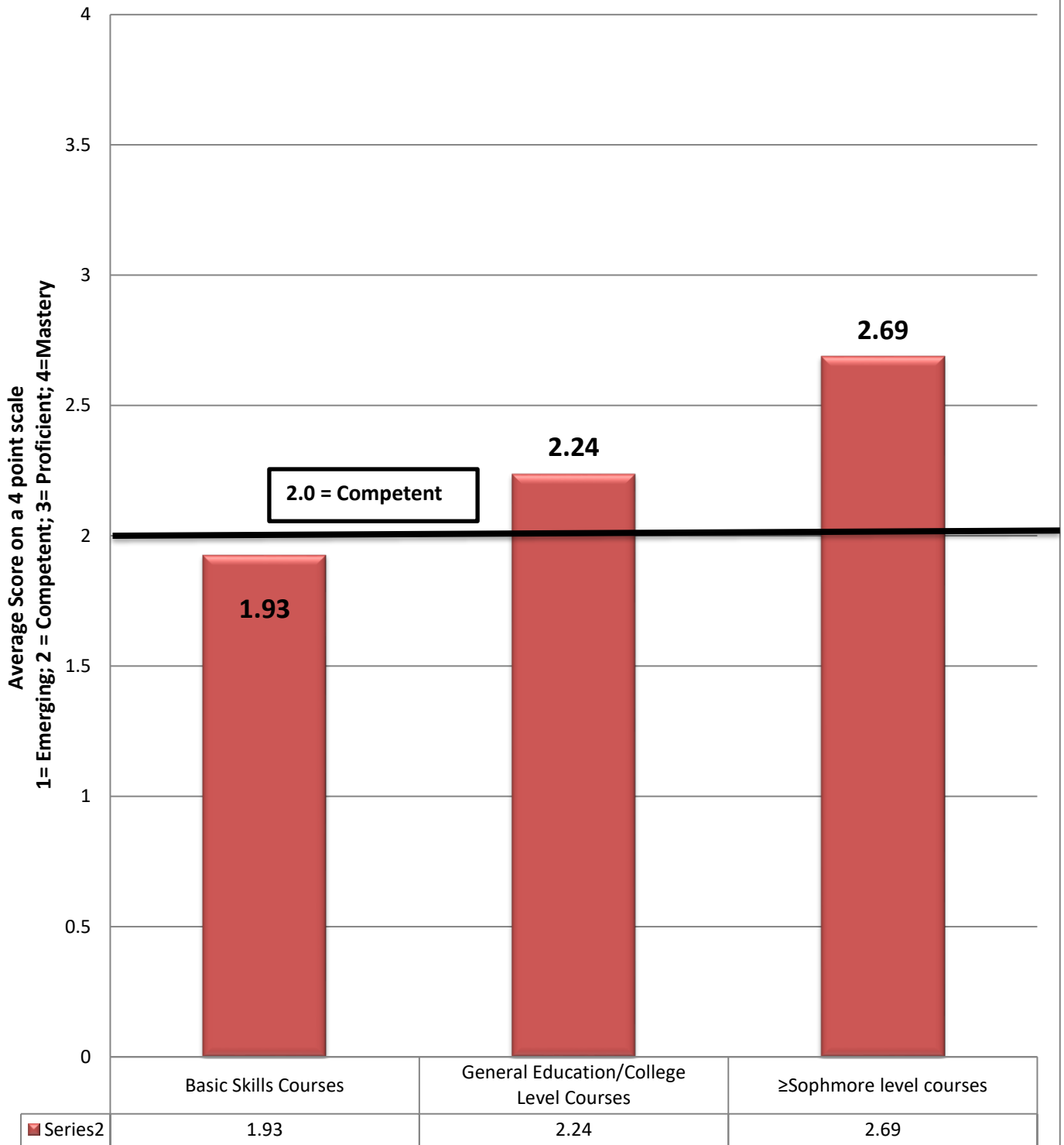
The student artifacts were then read and normed by a small group of experienced faculty from the Habits of the Mind Program, Making it Happen Program and the Assessment Committee. Samples for each level of the rubric were identified, scored by multiple readers, and then labeled to use in norming the classroom interventionists for assessment of a sample from the total artifacts. In addition, another packet of artifacts were assessed and rated but not labeled.

The assessed student work was then given to the classroom interventionists, along with the scored artifacts, to assess without knowing the expert norming results of the unlabeled samples. Classroom interventionists then shared their individual assessment of the unmarked work and discussed reasons for their conclusions.

The expert group assessments were then shared with the group, thus completing the norming process. Sample artifacts were randomly chosen. Each artifact was scored by two classroom interventionists and where scores did not match, an arbitrator did a final scoring. Scoring on a 4 point scale **1= Emerging; 2 = Competent; 3= Proficient; 4=Mastery**

ILO Assessment Information Oct 29	Number students Scored	Average Score	Types of Courses
Number of Sections Assessed 33 sections total	420 papers scored of over 800 handed in		Academic Development, English, Math, History, Communication, Spanish, Human Resources, Biology and Chemistry
Number of Basic Skills Sections	11 sections/173 students scored	1.93	Reading, Math, English (including accelerated and compressed courses)
Number of General Education Sections	15 sections/ 156 students scored	2.22	Spanish, Communications, History, English 1A, Sociology
Number of ≥ Sophomore level courses based on prerequisites required	7 sections/ 91 students scored	2.65	Chemistry, Microbiology, Math

BAKERSFIELD COLLEGE

Critical Thinking Institutional Learning Outcome
Preliminary Data Oct 29 Draft

Average Score on a 4 point scale
1= Emerging; 2 = Competent; 3= Proficient; 4=Mastery

2.0 = Competent

	Basic Skills Courses	General Education/College Level Courses	≥Sophmore level courses
Series2	1.93	2.24	2.69

CSU, BAKERSFIELD UNIVERSITY LEARNING OUTCOMES

Goal I. Students will show critical reasoning and problem solving skills.
1A: The student will demonstrate the ability to read critically.
1B: The student will demonstrate the ability to write critically.
1C: The student will demonstrate the ability to speak critically.
1D: The student will demonstrate the ability to think critically.
1E: The student will demonstrate the capacity for life-long learning.
1F: The student will engage in critical problem solving.

Goal II. Students will be able to communicate orally and in writing.
2A: The student will present information in a professional manner using well-developed writing skills.
2B: The student will present information in a professional manner using well-developed oral presentation skills.
2C: The student will demonstrate competence in information management.
2D: The student will demonstrate computer literacy.

Goal III. Students will demonstrate discipline-based knowledge and career-based-learning.
3A: The student will demonstrate broad knowledge in their selected discipline.
3B: The student will successfully apply discipline-based knowledge to the real world.
3C: The student will successfully engage in career preparation and planning.

Goal IV. Students will possess numerical literacy.
4A: The student will correctly utilize mathematical calculations and estimation skills.
4B: The student will demonstrate quantitative reasoning skills.
4C: The student will successfully apply quantitative reasoning skills to the real world.

Goal V. Students will become engaged citizens.
5A: The student will engage in university and community activities (including civic action).
5B: The student will demonstrate superior interpersonal skills.
5C: The student will develop and demonstrate a thorough knowledge of self.
5D: The student will demonstrate responsibility in group settings (including teamwork, leadership, managing skills, etc.)
5E: The student will demonstrate the ability to work independently.

Goal VI. Students will develop a well-rounded skill set.
6A: The student will possess and demonstrate an ethical framework.
6B: The student will demonstrate an understanding of cultural and ethnic diversity.
6C: The student will successfully apply research methods/analysis and technology for problem solving.   6D: The student will demonstrate interdisciplinary knowledge.

INSTITUTIONAL LEARNING OUTCOMES   BAKERSFIELD COLLEGE

Upon completion of a degree program at Bakersfield College, students will…

Think. Think critically and evaluate sources and information for validity and usefulness.

Communicate. Communicate effectively in both written and oral forms.

Demonstrate. Demonstrate competency in a field of knowledge or with job-related skills.

Engage. Engage productively in all levels of society — inter-personal, community, the state and nation, and the world.