

## Institutional Learning Outcome Assessment on Critical Thinking

Conducted in October by the Classroom Interventionists

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 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.

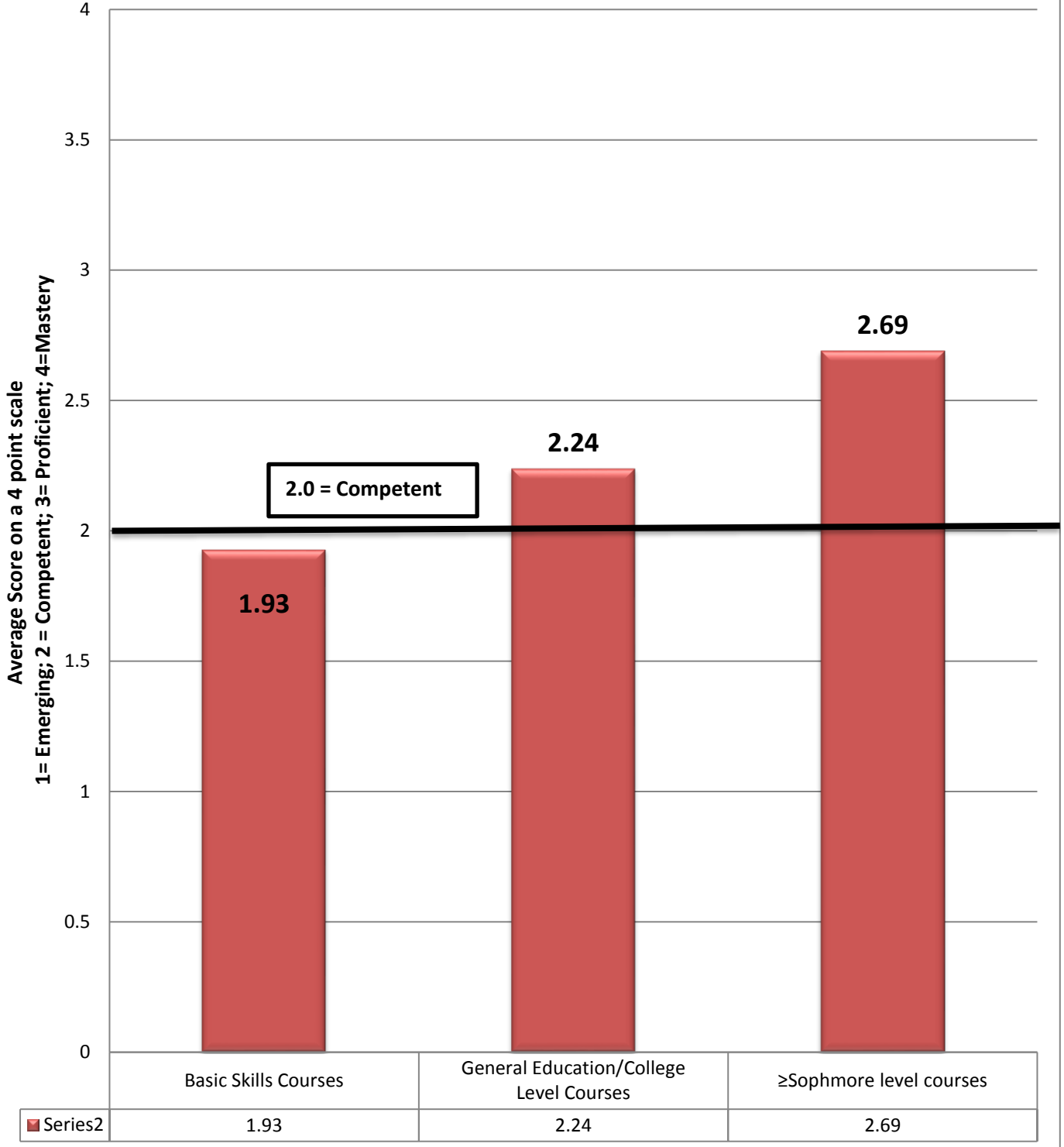
The student artifacts were then read and normed by a small group of experienced faculty from the Habits of the Mind Program, Making it Happen Program and the Assessment Committee. Samples for each level of the rubric were identified, scored by multiple readers, and then labeled to use in norming the 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<br>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 $\geq$ Sophomore level courses based on prerequisites required | 7 sections/ 91 students scored          | 2.65          | Chemistry, Microbiology, Math  |

### Critical Thinking Institutional Learning Outcome Preliminary Data Oct 29 Draft



ILO Critical Thinking 10/18  
additional

| Basic Skills<br>Classes | Course          | Faculty  |            | number | av      | total |
|-------------------------|-----------------|----------|------------|--------|---------|-------|
|                         | 11              |          |            |        |         |       |
|                         | Algebra         | Rush     | 71441      | 25     | 2.08    | 52    |
|                         | Algebra         | Rush     | 71444      | 18     | 2.05556 | 37    |
|                         | Eng50           | Marquez  | 71108      | 2      | 2.5     | 5     |
|                         | Eng50           | Marquez  | 71105      | 3      | 3       | 9     |
|                         | Math 50         | Tarjan   | 72422      | 16     | 1.8125  | 29    |
|                         | ACDV B72        | Bligh    | TTH        | 10     | 1.6     | 16    |
|                         | ACDV B72        | Bligh    | MW         | 10     | 1.4     | 14    |
|                         | ACDV B62        | Bligh    | MW8        | 7      | 2.14286 | 15    |
|                         | Unknown         |          |            | 23     | 1.78261 | 41    |
|                         | ACDV B61        | Johnson  |            | 28     | 2.10714 | 59    |
|                         | ENGB60          | Boyles   |            | 12     | 2.08333 | 25    |
|                         | ENG B53         | Boyles   |            | 19     | 1.68421 | 32    |
|                         |                 |          |            | 173    | 1.93064 | 334   |
| GE Courses              | 16              |          |            |        |         |       |
|                         | SpanB1          | Neville  | 71811      | 2      | 2.5     | 5     |
|                         | SpanB1          | Neville  | 71805      | 3      | 3       | 9     |
|                         | SpanB1          | Neville  | 71807      | 8      | 2.75    | 22    |
|                         | Com B1          | Norris   | TTh2       | 23     | 1.65217 | 38    |
|                         | ComB1           | Norris   | TTH4       | 20     | 1.65    | 33    |
|                         | CommB1          | Norris   | Th6        | 17     | 1.41176 | 24    |
|                         | His 17B         | Miller   | MW         | 19     | 2.21053 | 42    |
|                         | His17A          | Miller   | MW         | 2      | 4       | 8     |
|                         | His 17A         | Miller   | MW         | 5      | 2.6     | 13    |
|                         | EngB1A          | Davies   |            | 20     | 2.5     | 50    |
|                         | EngB1A          | Dumler   |            | 12     | 3.5     | 42    |
|                         | EngB1A          | Dumler   |            | 8      | 3.375   | 27    |
|                         | unknown         |          |            | 3      | 1.66667 | 5     |
|                         | History 25      | Miller   |            | 5      | 1.8     | 9     |
|                         | Hr People Skill | Robinson | 70745      | 9      | 2.44444 | 22    |
|                         |                 |          |            | 156    | 2.23718 | 349   |
| Advanced                | 8               |          |            |        |         |       |
|                         | Math B4A        | Tarjan   | 71426      | 17     | 2.94118 | 50    |
|                         | Math B6B        | Tarjan   | 71475      | 22     | 2.40909 | 53    |
|                         | Bio 16          | Peat     | 70683      | 25     | 2.36    | 59    |
|                         | Chem 30         | Vaughn   | 1 section  | 12     | 3.25    | 39    |
|                         | Chem 11         | Lowe     | 3 sections | 11     | 3.09091 | 34    |
|                         | unknown         |          |            | 4      | 2.5     | 10    |
|                         |                 |          |            | 91     | 2.69231 | 245   |

## Critical Thinking Rubric

| <i>Critical thinking is a habit of mind consisting of the ability to:</i> | Mastery 3 | Practiced 2 | Introduce 1 |
|---|-----------|-------------|-------------|
| <b>State a Problem</b>  |           |             |             |
| <b>Use Evidence</b>   |           |             |             |
| <b>Identify Bias</b>  |           |             |             |
| <b>Take a position</b>  |           |             |             |
| <b>Synthesize &amp; evaluate</b>  |           |             |             |

Critical thinking is a habit of mind that enables students to deal with problems combining existing ideas, images and expertise to think, react or work in novel, new imaginative ways – representing innovation, diverse thinking and risk taking..

Marcus - **Critical thinking** is a habit of mind which allows the Student to **demonstrate** their understanding of a topic through an ability to structure an argument with supporting premises/examples.

Red is from Grand Rapids rubric

Green is from AACU, dark blue is Lane

|   | Mastery 3   | Practiced 2   | Introduce 1  |
|---|---|---|--|
| State a Problem<br>Kim<br><b>(Inquire)</b><br><b>Identify and define key issue/s and/or problem/s</b> | <p>Problem/issue is clearly stated, described, and defined.</p> <p>Efficiently comprehends the beginning, middle, and possible conclusion(s) to an assigned problem GRCC</p> <p>Clearly, accurately, and appropriately identifies key issue/s and/or problem/s.</p> | <p>Problem/issue is stated, but it is not clear, described, and/or defined.</p> <p>Logically links or categorizes information into a coherent whole GRCC</p> <p>Identifies most or all key issue/s and/or problem/s.</p> <p>Some minor inaccuracies or omissions may be present, but do not interfere with meaning.</p> | <p>Problem/issue not stated.</p> <p>Identifies some key issue/s and/or problem/s. May have some inaccuracies, omissions or errors present that interfere with meaning</p> <p>Most or all of key issues/ and/or problem/s are not identified or defined, or are identified or defined inaccurately. Meaning is unclear.</p> |
| Use Evidence  | <p>Correctly cited evidence that is from varied sources, opinions and viewpoints representing high education sophistication</p> <p>Actively seeks out and follows through on even potentially risky concepts</p>  | <p>Limited evidence cited and often only that evidence supporting the position of the student</p> <p>Assesses and acquires the appropriate type of information needed to complete the assigned task GRCC</p>  | <p>No or very little cited evidence or support for a position.</p> <p>Seems unable to comprehend and or use basic research or information gathering skills to complete assigned tasks;GRCC</p>   |
| Identify Bias   | <p>Includes and discusses potential bias from multiple sides.</p>   | <p>Identifies that some bias is possible</p> <p>Logically links or categorizes information into a coherent whole; demonstrates basic ability to</p>   | <p>Ignores bias including their own lacks ability to recognize or weigh pros and cons of a particular idea;GRCC</p>  |

|   |   |   |   |
|---|---|---|---|
|   |   | recognize and weigh pros and cons of a particular approach to problem-solving<br>GRCC   |   |
| Take a position<br>Marcus<br><br>(Analyze)<br>Present and Analyze Data/ Information   | <p><b>argument</b> (premises to conclusion) <b>which takes into consideration critiques of chosen position and opposing viewpoints.</b></p> <p>2. Utilization of above skills in order to present an argument that is sound.</p> <p><b>Independently creates a logical and robust synthesis of various connected ideas GRCC</b><br/>Presents appropriate, sufficient and credible data/information.<br/>Clearly analyzes information for accuracy, relevance, and validity.<br/>Information clearly relates to meaning.</p> | <p><b>Adapts an appropriate exemplar to his or her own uses</b><br/>Presents sufficient and appropriate data/information.<br/>Generally analyzes data/information for accuracy, relevance and validity.<br/>Minor inaccuracies or omissions do not interfere with analysis or meaning</p>   | <p>- Fragmented argument</p> <p>premise – no conclusion<br/><b>difficulty with or unable to bring unity to related ideas GRCC</b><br/>Presents some appropriate data/information.<br/>May miss or ignore relevant data/information.<br/>Analysis is limited or somewhat inappropriate. May contain inaccuracies or omissions that interfere with analysis and/or meaning</p> <p>2. Does not present relevant and appropriate data/information.<br/>Fails to analyze, or uses inaccurate or inappropriate analysis of data/information.<br/>Copies information without analysis.</p> |
| Synthesize & evaluate<br>Janet<br><br>( Evaluate)<br>Apply a Multi-Dimensional approach/ Consider context<br><br>(Solve)<br>Demonstrate Sound Reasoning and Conclusions | <p>Use &amp; create ideas and novel solutions to solve a problem<br/><b>ability to problem solve provides evidence of the learner's grasp of clarity, breadth, creativity, precision, and other foundational critical thinking skills GRCC</b><br/><b>Integrates and responds to alien or divergent perspectives</b><br/>Clearly applies a multi- dimensional approach. Synthesizes various perspectives.<br/>Acknowledges limits of position or</p>  | <p>Primarily borrows from other peoples ideas and solutions.<br/><b>demonstrates basic ability to recognize and weigh pros and cons of a particular approach to problem-solving; can bring defensible resolve to a problem. GRCC</b><br/><b>Looks at alien or divergent perspectives</b><br/>Acknowledges multiple approaches.<br/>Some synthesis of perspectives.<br/>May not fully acknowledge limits of position or context, but is aware of</p> | <p>Little or no evaluation of concepts and ideas .<br/>Little integration, inclusion and synthesize multiple relevant concepts.<br/><b>May or may not be able to state opposing, divergent or alien positions or ideas.</b><br/>Somewhat simplified position with some sense of multiple approaches. Minor or vague synthesis of perspectives.<br/>Some acknowledgement position may have limits.<br/>May not acknowledge context</p>   |

|  |   |  |  |
|--|---|--|--|
|  | <p>context</p> <p>Reasoning is logical and creative, consistent, complete and often unique.<br/>Conclusion is complex and/or detailed, well supported, creative, complete, and relevant</p> | <p>limits or context</p> <p>Reasoning is mostly logical, complete, and consistent.<br/>Demonstrates some unique or creative insight.<br/>Conclusion is generally complete, supported, and mostly consistent and relevant</p> | <p>2 Student's position is grounded in a singular, often personal perspective. Position may be simplistic and obvious.<br/>Little or no awareness that position may have limits or context</p> <p>Reasoning contains elements of logic and/or creative insight, but not fully resolved. May have minor inconsistencies or omissions.<br/>Conclusion is relevant but abbreviated or simplified, not fully supported, and/or contains minor inconsistencies</p> <p>2 Reasoning is illogical, simplistic, inconsistent or absent.<br/>Conclusion is simplistic and stated as an absolute, or inconsistent with evidence or reasoning. Lack of coherent or clear conclusion.</p> |
|--|---|--|--|

## 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.

This posting is a series of excerpts on a very important subject, mindsets and how they impact learning. 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>  
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**Read the assigned text and respond to 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.**