# CRITICAL THINKING STUDY SKILLS

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## Background

We believe that understanding students' entry level critical thinking skills is crucial in order to provide an evidence base for skills development. Secondary school results data tends to measure lower order skills in Blooms taxonomy[1] such as content knowledge and comprehension. Higher Education on the other hand, focuses more on progressing students through the hierarchy, supporting the development of applied understanding, analysis, synthesis and evaluation. However, how do we know which skills students already have so that we can develop a practical approach to transform their development in the classroom?

### Bloom's Taxonomy



## Methodology

The answer is not straightforward! A range of instruments are available to measure and evaluate critical thinking skills. However, with no definitive conclusions in the literature as to the best one, we sought an instrument which matched most closely our institutional adaptation of Facione's critical thinking skills[2] of information seeking, interpretation, analysis, inference, evaluation and explanation. We selected the Watson-Glaser Critical Thinking Appraisal Tool[3], a validated instrument which we believe best reflects this skills framework, our student needs, learning outcomes and assessment criteria. During the 1st semester of 2017-18, a 100 year one (level 4) students in International Business, Marketing and Advertising, Paramedic Science and Occupational Therapy voluntarily agreed to undertake the Watson-Glaser Test[TM]. This was administered in class under exam-like conditions. Each student had 45 minutes to complete the test booklet which contained 5 separate components each testing a particular skill. Each section required multiple choice responses to a series of questions associated with a short themed statement. Answers given were anonymous and individual results would remain confidential.

### Skills assessed in the Watson-Glaser Test ™

1. **Drawing inference from fact**
2. **Recognition of assumptions**
3. **Deductive reasoning**
4. **Logical interpretation**
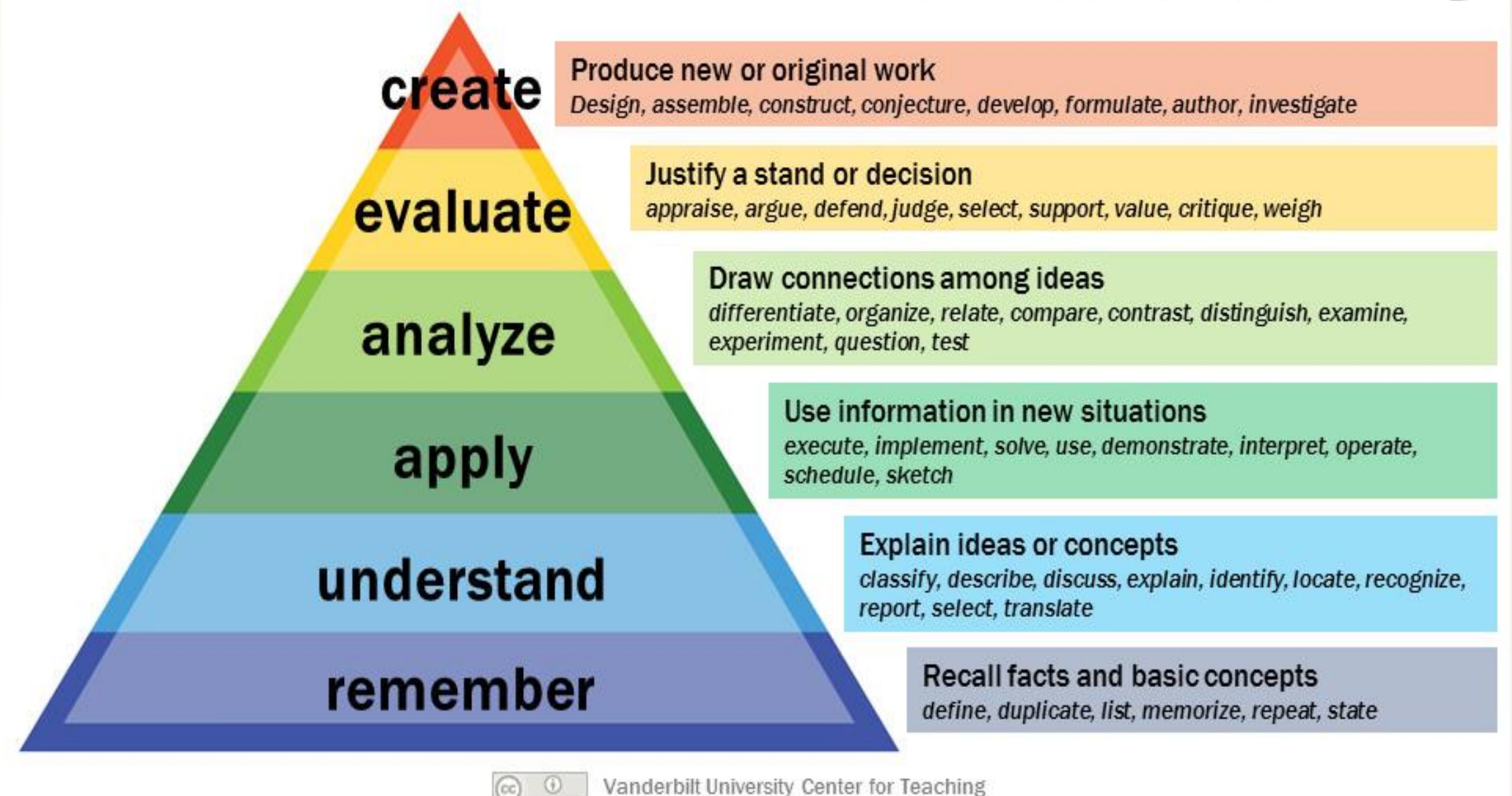5. **Evaluation of arguments**

## Early Results

Early results reflect our diverse student body: raw scores show that there are wide ranging differences across the data which is what we would expect from our varied cohort. Very few students demonstrate good critical thinking skills across all 5 dimensions of the framework: most struggle with deducing whether conclusions follow logically from given information, rating the probability of the truth of inferences, recognising unstated assumptions and weighing evidence. Further interrogation of the data is currently in progress.

## Feedback

Feedback was given to students in class two weeks later. This outlined overall cohort performance, in particular areas of strength and areas of development in relation to critical thinking. As the findings showed a wide range of results, we emphasised the importance of regular practice of all these skills within discipline related content and the importance of students working together to achieve this. To illustrate this, we gave students formative peer assessed exercises involving the critical evaluation of adverts. Students worked in pairs to provide written answers to questions relating to Facione's skills of information seeking, interpretation, analysis, inference, evaluation and explanation.[2] Using a rubric they assessed each others answers. This was followed by a class discussion on their responses with many of them highlighting that the exercise encouraged them to think more deeply about the information and not take the claims made a face value.



As educators we think this is a good example of beginning the process of transforming students awareness of how to demonstrate good critical thinking. Do you agree ? **What do you see as the challenges to developing and evaluating students critical thinking skills ?** Send your thoughts to us via @cttoolkit

**References** 1. Blooms Taxonomy Image - Vanderbilt University Center for Teaching. Bloom's Taxonomy. Used under CC BY license. Available at: https://www.flickr.com/photos/vandycft/29428436431 [Accessed 17.2.17] 2. Eales-Reynolds, L-J. Clarke, C. adaptation of Facione, PA. Critical Thinking a statement of expert consensus for purposes of educational assessment and instruction. APA: 1990. 3.Watson G. Glaser E Watson-Glaser Critical Thinking Appraisal UK Edition Psychological Corporation: 2011. Photo Image Copyright – Hilary Wason.