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TLOS: A Standardized Assessment Procedure

Dear Vice President Marrott, Dean Ganio, Associate Dean Denvir, and Assessment Committee,

In the following pages of this document, I have compiled data, and put into practice my Standardized Assessment Procedure, called TLOS (pronounced like telos, appropriately enough). The data yieldable here are rather endless, easily interpretable, and applicable with a college-wide focus. Furthermore, because this procedure relies completely upon percentile grades computed for a given assignment, under no circumstances does this procedure require any modification of any instructor or professor's examination material or strategy. In addition, this procedure requires no instructor or professor to reveal his/her test items or grade analysis protocol to any other faculty member. Moreover, this procedure allows each instructor the authority to contribute to a selection of appropriate Learning Outcomes for his/her course, and, importantly, complete, executive control of the relative importance of each Learning Objective as it relates to each of his/her assignments/examinations included in the TLOS Assessment Procedure.

With these priming ideas in mind, I believe the TLOS Assessment Procedure to be a standardized, college-wide assessment strategy that does not infringe upon academic freedom. Furthermore, from all I have read in the documentation from our accrediting body, Middle States, this fully (more than) satisfies stipulations for Program and Course Assessment. With the TLOS Assessment Procedure in place, I believe we can not only satisfy accreditation requirements, but we can assess Learning Outcomes as they relate to students, Individual Course Sections, Instructors-by-Course, Whole Courses (collapsing over particular sections/instructors), Whole Programs, and, with time, assess the college as a whole.

In the following pages of this document, please find a rationale, mathematical example, and discussion of the TLOS Assessment Procedure being applied to a small sample of students.

Best,

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COMPUTING THE TLOS

A Standardized Assessment Procedure

Rationale: Rather than a backward factor analysis, this procedure uses the student's total grade for a given assignment/examination; neither the format/examination procedure (e.g., essay/fill-in-the-blank/multiple choice/etc.) employed for a given assignment nor the number of items (i.e., 1 - ∞) on a given assignment affect the ratings – they are standardized into percentiles and by Learning Outcome ratings. In other words, the instructor does not have to compute anything new – he/she only has to enter grades from the course and rank the Learning Objectives. Furthermore, because they are standardized, the output obtained is not only easily interpretable for a given instructor, but also interpretable comparatively college-wide.

Outcomes:

1. **An understanding of each student's grasp of the Learning Outcomes for a particular course.**
2. **A reliable estimate of each class's grasp of Learning Outcomes specified for that class**
3. **An ability to track trends across sections of the same class**
4. **The opportunity to compile comparable data to assess an entire program with standardized data**
5. **The availability of a college-wide assessment of Learning Outcomes for graduates of SUNY-Ulster, proper.**

Step I: Identify Student Learning Outcomes

Student Learning Outcomes:

I. Demonstrate an understanding of various major schools of thought in psychology

II. Explain how individual differences and environmental contexts influence psychological development

III. Utilize knowledge of key issues and concepts in psychology;

IV. Use the language of contemporary psychology in discussions and written assignments

V. Possess a clear understanding of the Scientific Method in Psychological Science

Step II: Identify at least 2 examinations (of any sort, but graded on a 100pt scale) you intend to use for your assessment

Test I, Test II, Test III, Test IV

Step III: For each examination, generate a Learning Outcome Rating Score (LORS, hereafter) by rating the level at which (on a scale of 0-5) each of your Learning Outcomes is evident such that 0 = not evident; 5 = very evident.

	Test I	Test II	Test III	Test IV
Learning Outcome I	4	1	2	3
Learning Outcome II	2	3	3	3
Learning Outcome III	2	3	2	3
Learning Outcome IV	3	4	4	3
Learning Outcome V	5	2	2	3

Step IV: Total the number of LORS for each Learning Outcome across all examinations included in the assessment to generate a Total Outcome Ratings Score (TORS, hereafter).

TORS for Learning Outcome I: (4+1+2+3) = 10
TORS for Learning Outcome II: (2+3+3+3) = 11
TORS for Learning Outcome III: (2+3+2+3) = 10
TORS for Learning Outcome IV: (3+4+4+3) = 14
TORS for Learning Outcome V: (5+2+2+3) = 15

Step V: To assess the weight of each learning outcome per student, per examination, take each student's individual examination score, and multiply it by the corresponding Learning Outcome Rating Score (LORS) you provided for that particular examination. Then, add those scores together to generate a Total Learning Outcome Measure (TLOM, hereafter).

Class Size: n = 5	**Test I**	**Test II**	**Test III**	**Test IV**	FINAL AVERAGE*
Student 1	98	80	92	90	**90 A-**
Student 2	75	80	71	78	**76 C**
Student 3	48	56	70	74	**62 D-**
Student 4	88	67	73	79	**77 C+**
Student 5	79	92	88	87	**87 B+**

*NOTE. Because I am using all examinations given in my class, I have listed each student's final average (to be used, later).

For Student 1:
TLOM for Learning Outcome I: (98*4) + (80*1) + (92*2) + (90*3) = **926**
TLOM for Learning Outcome II: (98*2) + (80*3) + (92*3) + (90*3) = **982**
TLOM for Learning Outcome III: (98*2) + (80*3) + (92*2) + (90*3) = **890**
TLOM for Learning Outcome IV: (98*3) + (80*4) + (92*4) + (90*3) = **1252**
TLOM for Learning Outcome V: (98*5) + (80*2) + (92*2) + (90*3) = **1104**

For Student 2:
TLOM for Learning Outcome I: (75*4) + (80*1) + (71*2) + (78*3) = **756**
TLOM for Learning Outcome II: (75*2) + (80*3) + (71*3) + (78*3) = **837**
TLOM for Learning Outcome III: (75*2) + (80*3) + (71*2) + (78*3) = **766**
TLOM for Learning Outcome IV: (75*3) + (80*4) + (71*4) + (78*3) = **1063**
TLOM for Learning Outcome V: (75*5) + (80*2) + (71*2) + (78*3) = **911**

For Student 3:
TLOM for Learning Outcome I: (48*4) + (56*1) + (70*2) + (74*3) = **610**
TLOM for Learning Outcome II: (48*2) + (56*3) + (70*3) + (74*3) = **696**
TLOM for Learning Outcome III: (48*2) + (56*3) + (70*2) + (74*3) = **626**
TLOM for Learning Outcome IV: (48*3) + (56*4) + (70*4) + (74*3) = **870**
TLOM for Learning Outcome V: (48*5) + (56*2) + (70*2) + (74*3) = **714**

For Student 4:
TLOM for Learning Outcome I: (88*4) + (67*1) + (73*2) + (79*3) = **802**
TLOM for Learning Outcome II: (88*2) + (67*3) + (73*3) + (79*3) = **833**
TLOM for Learning Outcome III: (88*2) + (67*3) + (73*2) + (79*3) = **760**
TLOM for Learning Outcome IV: (88*3) + (67*4) + (73*4) + (79*3) = **1061**
TLOM for Learning Outcome V: (88*5) + (67*2) + (73*2) + (79*3) = **957**

For Student 5:
TLOM for Learning Outcome I: (79*4) + (92*1) + (88*2) + (87*3) = **845**
TLOM for Learning Outcome II: (79*2) + (92*3) + (88*3) + (87*3) = **959**
TLOM for Learning Outcome III: (79*2) + (92*3) + (88*2) + (87*3) = **871**
TLOM for Learning Outcome IV: (79*3) + (92*4) + (88*4) + (87*3) = **1218**
TLOM for Learning Outcome V: (79*5) + (92*2) + (88*2) + (87*3) = **1016**

Step VI: To assess each student's grasp of a particular Learning Outcome you will compute an individual student's Total Learning Outcome Score (iTLOS, hereafter). For each student, divide the Total Learning Outcome Measure (TLOM) for each student by the Total Outcome Ratings Score (TORS) to generate the iTLOS.

TLOM/TORS = **iTLOS**

For Student 1:
iTLOS for Learning Outcome I: 926/10 = **92.6**
iTLOS for Learning Outcome II: 982/11 = **89.3**
iTLOS for Learning Outcome III: 890/10 = **89.0**
iTLOS for Learning Outcome IV: 1252/14 = **89.4**
iTLOS for Learning Outcome V: 1104/15 = **73.6**

For Student 2:
iTLOS for Learning Outcome I: 756/10 = **75.6**
iTLOS for Learning Outcome II: 837/11 = **76.1**
iTLOS for Learning Outcome III: 766/10 = **76.6**
iTLOS for Learning Outcome IV: 1063/14 = **75.9**
iTLOS for Learning Outcome V: 911/15 = **60.7**

For Student 3:
iTLOS for Learning Outcome I: 610/10 = **61.0**
iTLOS for Learning Outcome II: 696/11 = **63.3**
iTLOS for Learning Outcome III: 626/10 = **62.6**
iTLOS for Learning Outcome IV: 870/14 = **62.1**
iTLOS for Learning Outcome V: 714/15 = **47.6**

For Student 4:
iTLOS for Learning Outcome I: 802/10 = **80.2**
iTLOS for Learning Outcome II: 833/11 = **84.8**
iTLOS for Learning Outcome III: 760/10 = **76.0**
iTLOS for Learning Outcome IV: 1061/14 = **75.8**
iTLOS for Learning Outcome V: 957/15 = **68.4**

For Student 5:
iTLOS for Learning Outcome I: 845/10 = **84.5**
iTLOS for Learning Outcome II: 959/11 = **87.2**
iTLOS for Learning Outcome III: 871/10 = **87.1**
iTLOS for Learning Outcome IV: 1218/14 = **87.0**
iTLOS for Learning Outcome V: 1016/15 = **67.7**

STEP VII: To assess your section's/classes average grasp of a Learning Outcome, you will compute a TLOS score. To do this, simply average all the iTLOS scores for each Learning Outcome within a section/class by adding each student's iTLOS score for a given Learning Outcome, and dividing that summed number by the total number of iTLOS scores you have for that Learning Outcome (i.e., the total number of students in your class).

TLOS for Learning Outcome I: (92.6 + 75.6 + 61.0 + 80.2 + 84.5)/5 = 78.8
TLOS for Learning Outcome II: (89.3 + 76.1 + 63.3 + 84.8 + 87.2)/5 = 80.1
TLOS for Learning Outcome III (89.0 + 76.6 + 62.6 + 76.0 + 87.1)/5 = 78.3
TLOS for Learning Outcome IV: (89.4 + 75.9 + 62.1 + 75.8 + 87.0)/5 = 78.0
TLOS for Learning Outcome V: (73.6 + 60.7 + 47.6 + 68.4 + 67.7)/5 = 63.6

Interpreting the iTLOS

What Does it All Mean?

Because a 100pt scale is standard (or inherent or derivable) in evaluation of student performance in a class (because it is how final grades are computed), and, because the TLOS strategy incorporates this 100pt scale in its assessment of Learning Outcomes, it follows, then, that the iTLOS scores are representative of a given student's grasp of a Learning Outcome in much the same way that a student's final average in a course is indicative of a student's performance in that course. As such, we can now extend a 100pt grading scale inherent in course averages and GPAs to be the theoretical underpinning for interpreting our iTLOS scores (and later, our TLOS and grand TLOS scores) for each Learning Outcome.

It follows then, our scale for determining the grasp of a given Learning Outcome should be:

94 – 100 = A	84 – 86 = B	74 – 76 = C	64 – 66 = D
90 - 93 = A-	80 – 83 = B-	70 – 73 = C-	60 – 63 = D-
87 – 89 = B+	77 – 79 = C+	67 – 69 = D+	0 – 59 = F

Here, as with student course averages, an iTLOS of:

90 – 100 indicates an **excellent** grasp of a Learning Outcome
80 – 89 indicates an **good** grasp of a Learning Outcome
70 – 79 indicates a **satisfactory** grasp of a Learning Outcome
60 – 69 indicates a **poor** grasp of a Learning Outcome
0 – 59 indicates a **unsatisfactory** grasp of a Learning Outcome

For example, if applying this strategy to Student 1 to assess his/her grasp of each Learning Outcome, I would find the following discussion to be both data driven and theoretically sound:

Learning Outcome 1 (iTLOS SCORE: 92.6): *Demonstrate an understanding of various major schools of thought in psychology* was understood very well
Learning Outcome 2 (iTLOS SCORE: 89.3): *Explain how individual differences and environmental contexts influence psychological development* was understood slightly less than Learning Outome 1, but still at an above satisfactory level
Learning Outcome 3 (iTLOS SCORE: 89.0): *Utilize knowledge of key issues and concepts in psychology* was understood as well as Learning Outcome 2; that is, at an above satisfactory level
Learning Outcome 4 (iTLOS SCORE: 89.4): *Use the language of contemporary psychology in discussions and written assignments* was understood as well as Learning Outcomes 2 and 3; that is, at an above satisfactory level
Learning Outcome 5 (iTLOS SCORE: 73.6): *Possess a clear understanding of the Scientific Method in Psychological Science* showed the greatest room for improvement. The score suggests that, while the student was able to understand the scientific method, he/she may have experienced difficulty relative to other concepts discussed in the course.

How are iTLOS scores useful? A particular student's iTLOS scores may be helpful in addressing that student's shortcomings if he/she instigates a conversation about improvement or the election to retake the course. More importantly, iTLOS scores provide a wealth of data points (i.e., the size of your class multiplied by the total number of items on each examination you choose to use to compute a given TLOS – **for this example, each TLOS is supported/informed by 1000 data points** – that is, there are 50 questions on each examination (4) and 5 students providing each answer – each of which differentially contributes to the determination of each TLOS; Statistical Power) for assessing a grand TLOS, or, a given section's/class's average grasp of each Learning Outcome.

Interpreting the TLOS

What Does it All Mean?

Again, because a 100pt scale is standard (or inherent or derivable) in evaluation of academic performance in a class (because it is how final grades are computed), and, because the TLOS strategy incorporates this 100pt scale in its assessment of Learning Outcomes, it follows, then, that the TLOS scores are representative of a collection students' grasp of a Learning Outcome in much the same way that a final, overall class' average in a course is indicative largely indicative of performance in that course (that your student's scores in your classes may be bimodal or skewed does not matter as homogeneity of variance is accounted for by equal weighting for each Learning Outcome for every student). As such, we can now extend a 100pt grading scale inherent in course averages and GPAs to be the theoretical underpinning for interpreting not just our iTLOS scores but, our TLOS scores for each Learning Outcome, as well.

It follows then, just as with iTLOS scores, our scale for determining the grasp of a given Learning Outcome using TLOS scores should be:

94 – 100 = A	84 – 86 = B	74 – 76 = C	64 – 66 = D
90 - 93 = A-	80 – 83 = B-	70 – 73 = C-	60 – 63 = D-
87 – 89 = B+	77 – 79 = C+	67 – 69 = D+	0 – 59 = F

Here, as with student course averages and iTLOS scores, a class average grand TLOS score of:

90 – 100 indicates an **excellent** grasp of a Learning Outcome
80 – 89 indicates an **good** grasp of a Learning Outcome
70 – 79 indicates a **satisfactory** grasp of a Learning Outcome
60 – 69 indicates a **poor** grasp of a Learning Outcome
0 – 59 indicates a **unsatisfactory** grasp of a Learning Outcome

For example, if applying this strategy to my class of 5 students for each Learning Outcome, I would find the following discussion to be both data driven and theoretically sound:

Learning Outcome 1 (TLOS SCORE: 78.8): *Demonstrate an understanding of various major schools of thought in psychology* was understood at an average level by my class. This means, there is some room for me to improve my teaching concerning this Learning Outcome; however, most students in my class are achieving this outcome. *Next time, I may want to spend a bit more time covering major schools of thought in Psychology.*

Learning Outcome 2 (TLOS SCORE: 80.1): *Explain how individual differences and environmental contexts influence psychological development* was understood well by most students in my class. While there is still room for improvement, it might be more helpful to focus my attention elsewhere.

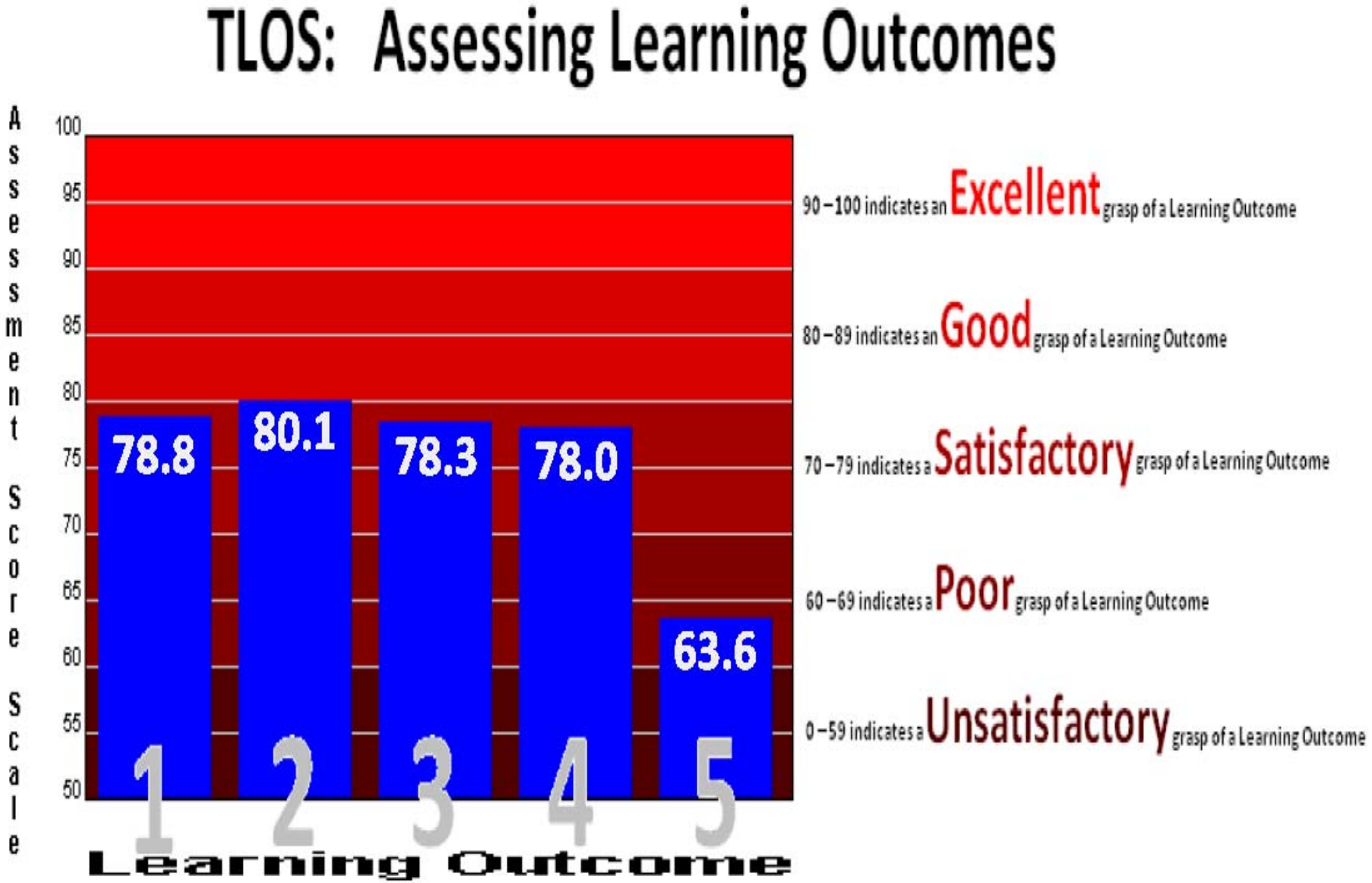
Learning Outcome 3 (TLOS SCORE: 78.3): *Utilize knowledge of key issues and concepts in psychology* was understood as well as Learning Outcome 1; that is, at a satisfactory level. Taken together, it may be that I should work harder on being effective in the way key issues and concepts tie into the major schools of thought in Psychology.

Learning Outcome 4 (TLOS SCORE: 78.0): *Use the language of contemporary psychology in discussions and written assignments* was understood as well as Learning Outcomes 1 and 2; that is, at a satisfactory level. In light of the previous findings, I can now direct my focus toward increasing focus on key issues and concepts as they relate to major schools of thought while emphasizing a lexical depth in contemporary psychology.

Learning Outcome 5 (TLOS SCORE: 63.6): *Possess a clear understanding of the Scientific Method in Psychological Science* showed the greatest room for improvement. The score suggests that, students struggled to grasp the scientific method, and it is, then, here that I should focus the bulk of my efforts to improve my teaching.

Interpreting the TLOS

What Does it All Mean?



Getting to the Grand TLOS

Progam and College-Wide Assessment?

Once again, because the TLOS Assessment Procedure relies upon 100pt scaled data easily derivable from all college courses, it becomes very simple to analyze whole programs using data obtained from each course within that program. To do this, the following steps are involved:

Step I. Determine the Learning Outcomes for a particular program.

Step II. Determine and sort all appropriate classes that could be used to complete the requirements of that Program.

Step III. Now, again, rate (on a scale of 0-5) the Learning Outcomes of the classes; however, instead of determining their relative coverage in a given class's assignement/examination, this time, your ratings will reflect, instead, the degree to which a class's particular Learning Outcome is related to a Program's Learning Outcome (called PLORS score). Your score here will be used in the same fashion your LORS to compute the iTLOS for a class.

Step IV. Now, again, compute the Total Outcome Ratings for all class Learning Outcomes as they pertain to a Program's Learning Outcomes (called PLOTS score). Your score here will be used in the same fashion as your TORS to compute the iTLOS for a class.

Step V. Multiply the TLOS for each class' Learning Outcome by its PLORS score for Program Learning Outcome Relatedness.

Step VI. Divide this number by your PLOTS score. This will render a data-driven analysis of the grasp of each of a given Program's Learning Outcomes using the same rational as that used in the student iTLOS and the TLOS.