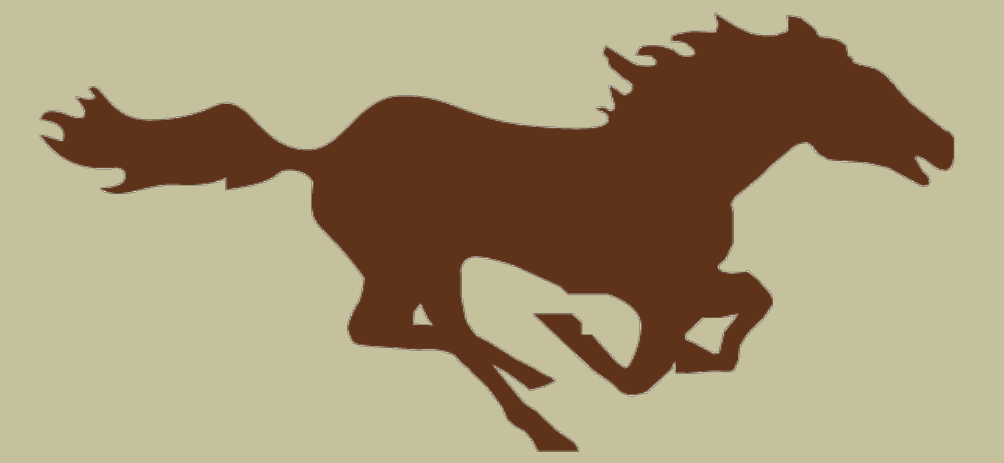


Sophomore & Junior Portfolio Reviews

Alma Hale, Pat Brace, Anne Wedler, Pat Hand.
Art & Design Program



Overview of your Program

The Art & Design Program has had portfolio reviews every semester for many years. We do this at the sophomore and junior levels. The format is that we take a day or two days, depending on the number of students to be reviewed, and cancel all art classes during the review time. All members of the Art & Design faculty participate. Each student has 20 minutes to display, describe, and answer questions about their artwork. Faculty then meet to evaluate what we learned about the student, about our classes, and about the program in general. We have always used this as a time to consider course corrections in any of those areas.

The process is very organic and responsive to the needs of the Program, but it has been difficult to determine how to best quantify our results so others outside the Art & Design Program can make sense of it. With the increased emphasis on assessment, we have had to figure out that component. In addition, we have added a Senior Review that uses the same criteria so we can see if there is progress from Sophomore level to Senior graduates. Early results of this assessment arc are encouraging, and validate what we have seen in a less quantitative way in previous years.

Programmatic Approach to Assessment

The biggest change we made to what we had been doing previously is that we organized the data collection differently. We simplified it by stripping out any extra criteria that we didn't really value enough to make changes to our program over. We did that by categorizing the criteria into four areas that we were particularly interested in developing in our students: Process, Form, Content, and History.

We also simplified how we rate the criteria, from a 10-point scale to a 4-point scale. We defined what each point means: Advanced, Competent, Beginning, and None, which means no evidence provided. We then standardized our evaluation, so that everyone is on the same scale from Sophomore to Senior, instead of comparing a sophomore to other sophomores, for example, we realized we needed to be able to show progress through the program. So the expectations of a sophomore may be lower than that of a senior, but they are still evaluated on the same scale. Instead of saying a student is good for a sophomore, we now say they are either good as a sophomore or not, regardless of where they are in their progress through the program.

Program Learning Outcomes

- **SLO 1) Process**
 - SLO 1.1 Students will present work effectively.
 - SLO 1.2 Students will integrate sketchbooks or other preliminary work into their creative process.
- **SLO 2) Form**
 - SLO 2.1 Students will use visual elements and principles of design correctly in their works.
 - SLO 2.2 Students will show skillful use of media in their works.
 - SLO 2.3 Students will demonstrate skill in image making.
- **SLO 3) Content**
 - SLO 3.1 Students will show skill in communicating ideas expressively through their work.
 - SLO 3.2 Students will use creative problem solving skills in the execution of their work.
 - SLO 3.3 Students will research and appropriately use historical or contemporary artists' work to inform their own.
- **SLO 4) Art History**
 - SLO 4.1 Students will critically evaluate artistic aesthetic issues and present them in oral and/or written form.

Assessment Plan and Timetable

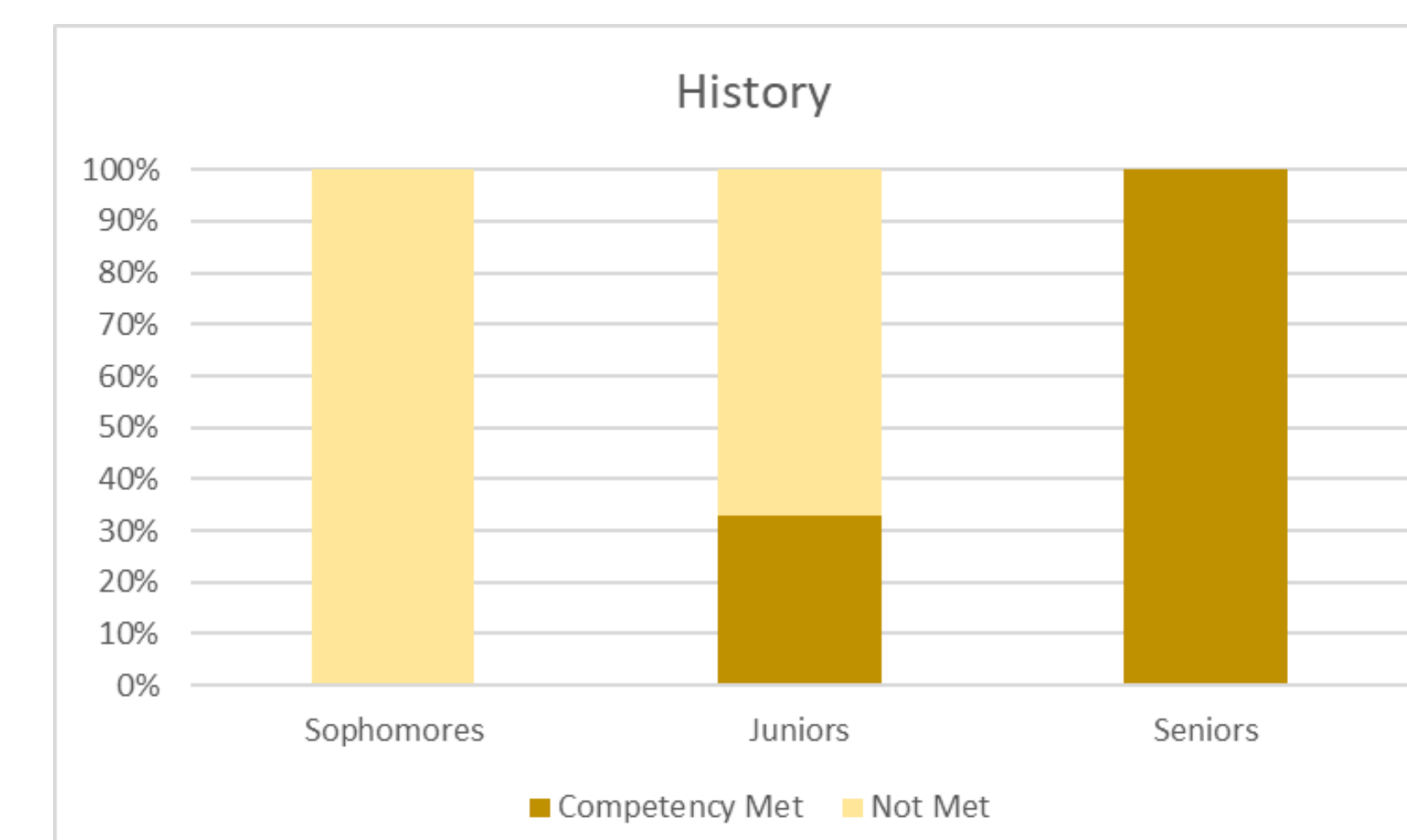
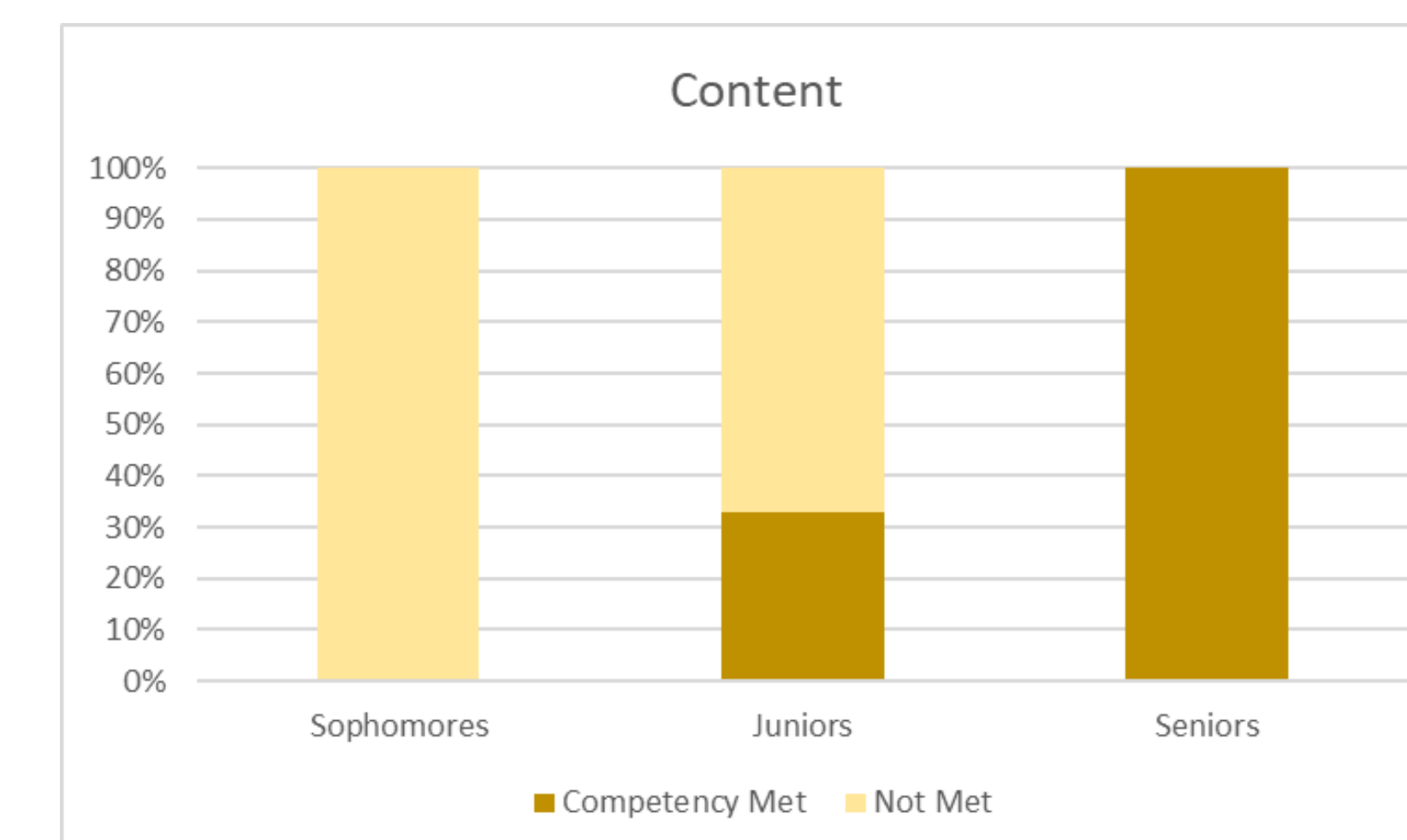
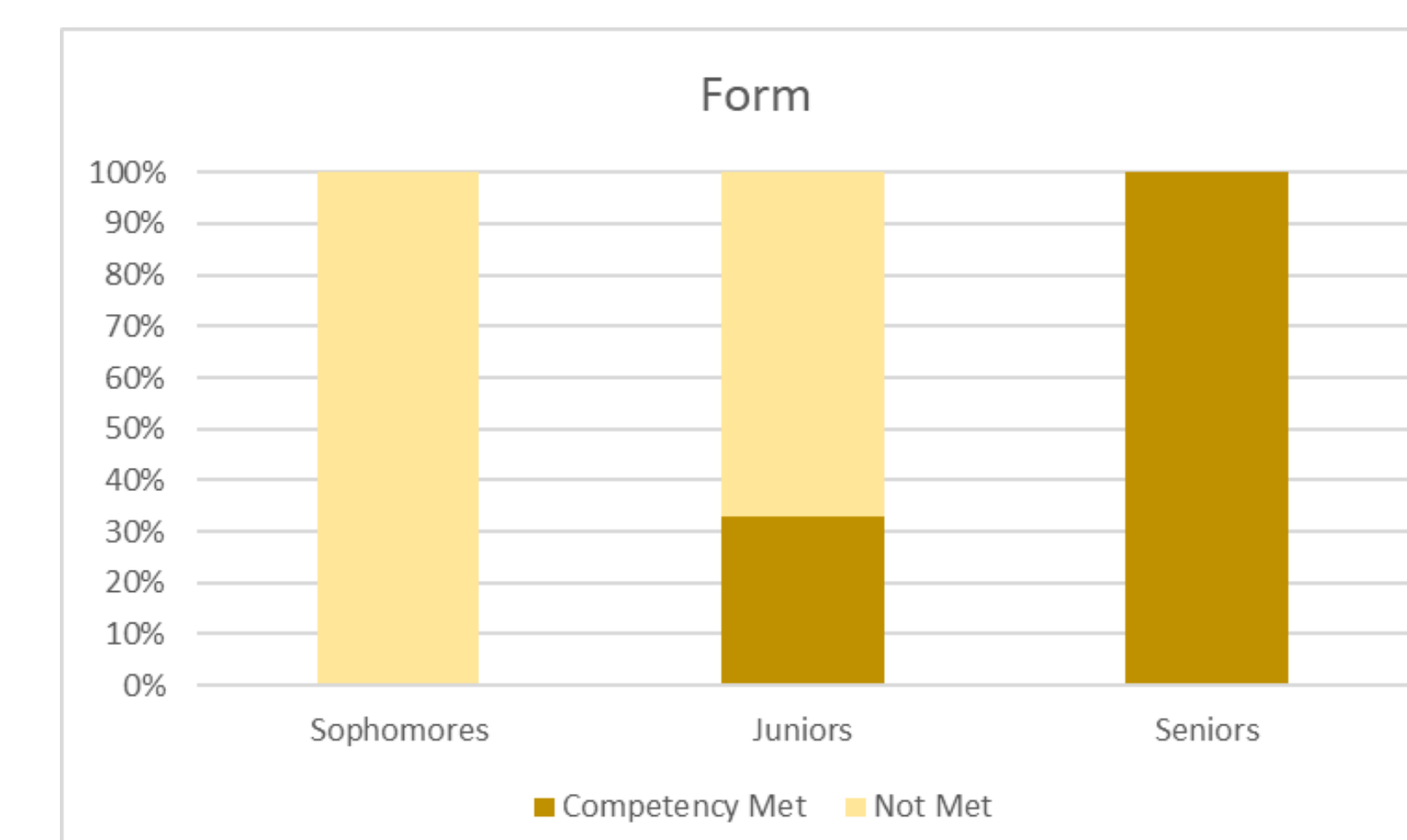
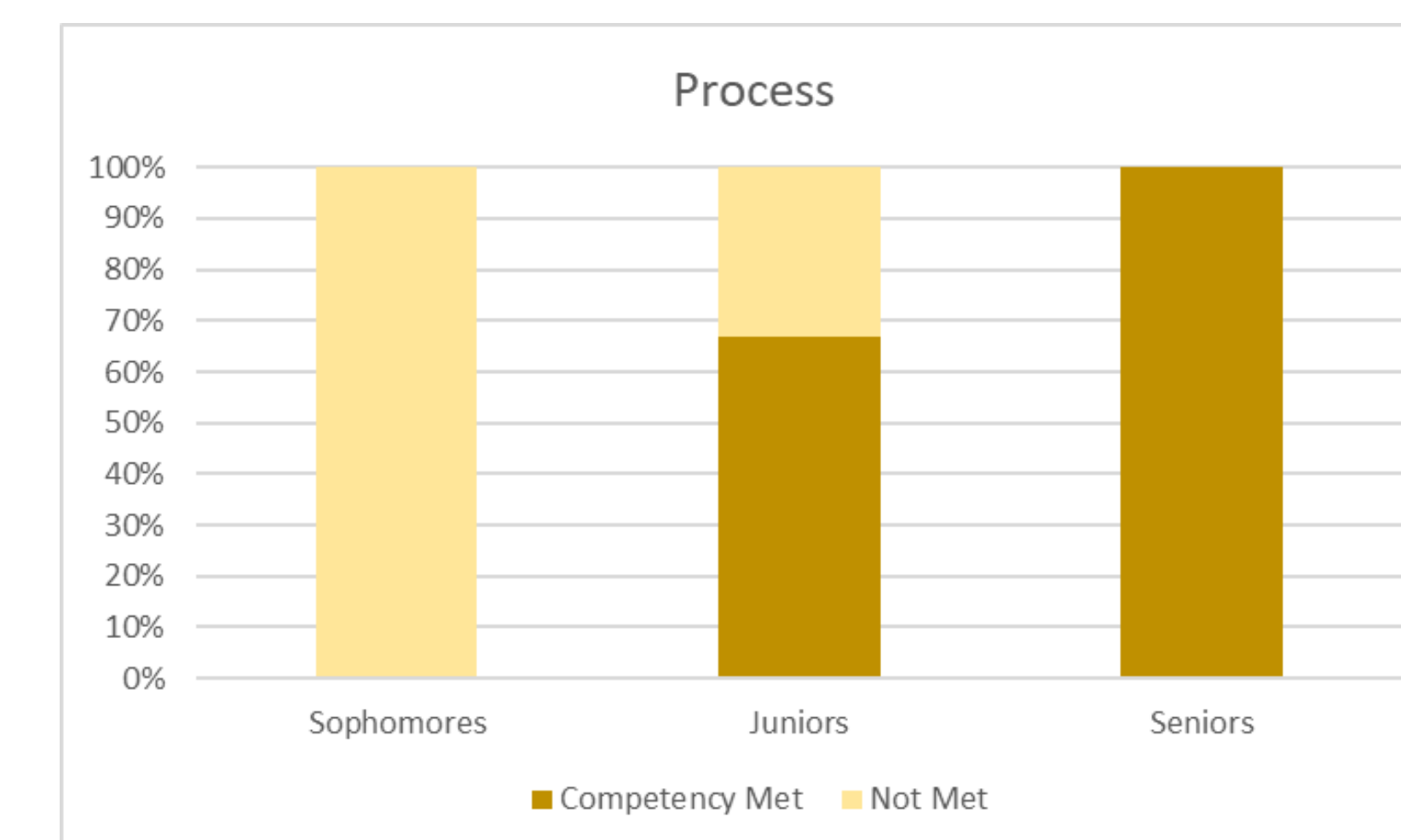
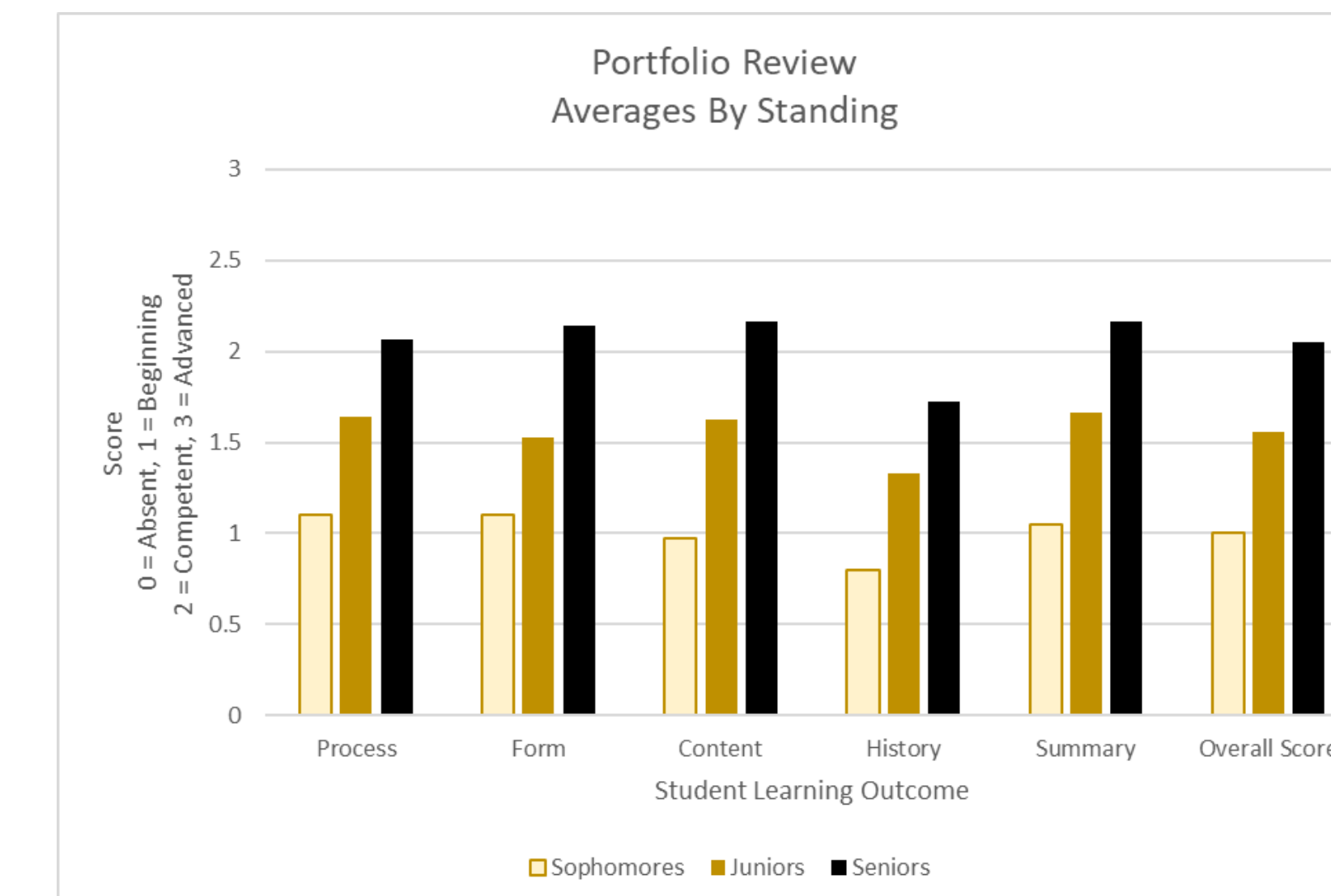
Our Assessment Plan is to continue with our current format, which works well for us, and continue gathering data. We will continue to address our weaknesses in the organic method we have traditionally used. We will also continue gathering data that will reinforce our methods, and allow others to see and understand progress.

Our timeline for Assessment is to evaluate two SLO categories each year. SLO 1 and 3 will be even years; SLO 2 and 4 will be odd years. These are based on calendar years. Deficiencies will be addressed as previously, on a course-by-course basis. This way we can address programmatic weakness by addressing the course weaknesses.

Assessment Accomplishments

While we have been collecting data for years, we have just recently started to standardize our expectations. Prior to that, with all faculty evaluating based on their own individual expectations, we could not get reliable data. We have two semesters evaluated with these standard expectations, so we are very early in the process of reporting meaningful results. Early results are positive.

Assessment Accomplishments



Challenges

The biggest challenge we have had in this process has been how to communicate this subjective evaluation in an objective format that others would understand and appreciate. It has really been like pounding a square peg into a round hole. We are still not certain that the format is effective, but the process is valuable to us. Even if we never reported to anyone else what we are doing, we would still do it, and it would still have value for us, as it has for years.

Not only is the process organic and subjective (even though we try to be as objective as we can, a certain amount of the evaluation depends on the experience and taste of the evaluators), but in addition, none of the faculty are trained to any great degree in how to gather the type of data that the assessment description seem to demand. So, we have had to turn to experts outside our Program to help with that.

Next Steps

Our next step is to continue gathering data. As our method has been effectively working for many years, we don't intend to change the format of gathering that data. We need to remember to input the data into the spreadsheet that was developed for us by Jeff Bell. The date for the next Sophomore/Junior Review is March 26th.

Additional Comments

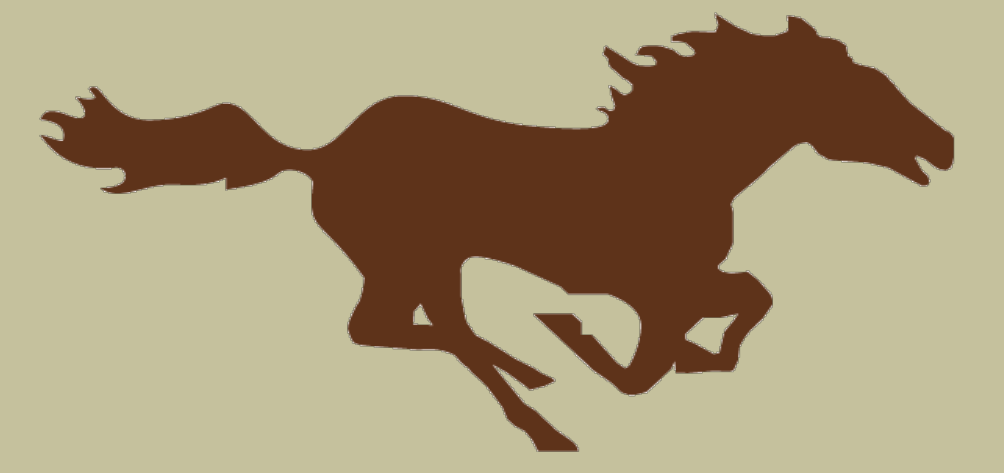
Our assessment system has us meeting with the individual students after it is all done, and sharing the evaluation sheets with them. This gives them a chance to get feedback on their work from all Art & Design faculty, instead of just in the class critiques. This gives the faculty and student both a chance to look at their work in context of all the other work they do, helping them understand how all the skills they learn interrelate as they go from course to course in the curriculum.

Acknowledgements

Art & Design Faculty for making time in their classwork and schedules to perform these reviews every semester.
Jeff Bell for helping us make the data available to non-artists in a way that they can understand it.

Assessment of Discipline Content Knowledge

Jeffrey W. Bell, Kris Cleveland, & Mostafa Hegazy,
Exercise Science Program



Overview of Exercise Science Program

- Exercise Science has been a stand-alone major since Fall of 2010
- In 2013, Exercise Science differentiated two emphasis areas: Allied Health (original major) and Corporate Wellness/Exercise Leadership
- In 2015, Exercise Science added a third emphasis for Coaching and Human Performance
- In 2015, Exercise Science began offering the Corporate Wellness/Exercise Leadership major on 3 Twin Cities campuses
- At all campuses combined, there are ~225 majors
- 3 key courses historically make up the discipline-specific content in exercise science: Anatomical Kinesiology, Biomechanics, and Exercise Physiology.

Programmatic Approach to Assessment

Exercise Science program goals that are addressed within Anatomical Kinesiology, Biomechanics, and Exercise Physiology include:

Goal 1: Students will understand the scientific principles governing human movement.

Student Learning Outcome 1.1

- The anatomical principles of human movement:
- The mechanical principles of human movement
- The physiological adaptations and mal-adaptations to exercise:
- The components of fundamental movement patterns and the changes in the developmental stages through a life-span approach:
- The nutritional and energy needs during activity and exercise

Anatomical Kinesiology: Performance on a late semester skills test was used and scored by an in-house rubric.

Biomechanics: The percent of 10 selected questions representing different concepts that were answered correctly on the final examination was used.

Exercise Physiology: Performance on final examination essay questions were used and scored by a rubric from below expectations to advanced.

CATEGORY	7	6	5	4	3
Explanation of Exercise (A) 7pts	Explanation is clear and understandable	Explanation is basic but includes key components.	Explanation is missing most of the components	Explanation is missing most of the components	Cannot identify the exercise
Demonstration of Exercise (B) 7pts	Demonstration includes all components: position, plane of motion, breathing, what muscle is targeted	Demonstration is missing one of the following components: position, plane of motion, breathing, what muscle is targeted	Demonstration missing 2 components: position, plane of motion, breathing, what muscle is targeted	Demonstration is missing 3 components: position, plane of motion, breathing, what muscle is targeted	Cannot demonstrate the exercise
Introducing yourself to client and getting a verbal consent to physically correcting them if needed (C) 7 points	Introduction with verbal consent including eye contact	Introduction with verbal consent missing eye contact	Introduction missing name or verbal consent but includes eye contact	Introduction missing name or verbal consent but missing eye contact	Does not introduce themselves to client at all.
Instruction to client on components of the exercise (D) 7pts	Instructions are clear, verbalized well, and the client understands	Instructions are clear but missing 1-2 components	Instructions are not clear, client is not understanding the key components	Instruction is missing key components	Cannot give correct instructions
Correction of client: verbal, manual (E) 7pts	Student is able to correct any form errors, is continually assessing form, technique	Student is able to correct any form errors, is somewhat assessing form, technique	Student is able to correct errors, but is not continually monitoring technique and form	Student is not correcting errors but is monitoring technique	Student is not correcting errors and is not observing the technique at all
Joint Movement (F) 7pts	Student knows joint actions for two of the joints involved	Student knows joint actions of 1 joint and missing 1 or 2 actions of the other joint	Student missing 1 or 2 actions of the both joints	Student missing 1 or 2 actions for 1 joint and not know the any joint actions for the other joint	Student does not know the joint movement
Planes of Motion (G) 7pts	Student knows planes of motion for both joints from the section above		Student knows the plane of motion for 1 of the 2 joints		Student does not know the planes of motion for either joint.

Table 1. Number of students receiving a score for each category

Score	A	B	C	D	E	F	G
7	10	10	24	17	8	11	18
6	7	8	3	4	7	3	0
5	6	6	1	6	13	9	5
4	1	1	0	0	4	0	0
3	6	5	2	3	2	7	7

A:Explanation of Exercise, B:Demonstration of Exercise, C:Introducing themselves, D:Instruction to client, E:Correction of client, F:Describing the joint movement, G:Naming the planes of Motion

Table 2. Number and percent of students scoring above and below 70% in each category.

	A	B	C	D	E	F	G
Above 70% (5,6,or7)	23 (77%)	24 (80%)	28 (93%)	27 (90%)	28 (93%)	23 (77%)	23 (77%)
Below 70% (3 or 4)	7 (23%)	6 (20%)	2 (7%)	3 (10%)	6 (7%)	7 (23%)	7 (23%)

Biomechanics Final Exam Questions

- Which of the following is NOT a basic dimension of measurement?
 - Length
 - mass
 - Time
 - All of the above are basic dimensions
- A person running in the negative direction but slowing down has acceleration
 - Positive
 - Negative
 - Zero
 - Any of the above can be true depending on the situation
- The optimal angle for a long jump is degrees
 - 45
 - 42-43
 - 10-12
 - 17-22
- The most important factor affecting the horizontal distance of a projectile is
 - Angle of release
 - Speed of release
 - Relative height of release
 - All of the above are equally important
- If acceleration is negative, force will be
 - Negative all the time
 - Positive all the time
 - Negative only if we are speeding up
 - Positive only if we are speeding up
- On a free body diagram we need to show
 - External forces only
 - Internal forces only
 - Both internal and external force
 - Either internal or external forces depending on the situation
- Lombard's paradox is explained by
 - The biceps femoris having a longer moment arm at the hip but not the knee
 - The biceps femoris having a shorter moment arm at the hip but not the knee
 - The biceps femoris having a longer moment arm at the hip and the knee
 - The biceps femoris having a shorter moment arm at the hip and the knee
- Compared to someone with normal arches, a flat footed person will have
 - Longer moment arm for the load and effort
 - Shorter moment arm for the load and effort
 - Longer moment arm for the load but not the effort
 - Shooter moment arm for the load but not the effort
- A jump with rotation like that performed by figure skaters is an example of
 - Static equilibrium
 - $\sum F \neq 0$ and $\sum \tau \neq 0$
 - $\sum F \neq 0$ and $\sum \tau = 0$
 - $\sum F = 0$ and $\sum \tau \neq 0$
- Someone with a painful hip should
 - Hold a cane on the same side and carry a weight on the opposite side
 - Hold a cane on the opposite side and carry a weight on the same side
 - Hold a cane and carry a load on the same side
 - Hold a cane and carry a load on the opposite side

Biomechanics cont.

Table 1. Number of correct answers out of the ten sample questions for each participant as well as overall group average.

Student	# Correct	% Correct	Student	# Correct	% Correct
1	6	60	19	9	90
2	10	100	20	8	80
3	9	90	21	4	40
4	2	20	22	6	60
5	10	100	23	8	80
6	1	10	24	8	80
7	5	50	25	5	50
8	10	100	26	4	40
9	7	70	27	8	80
10	8	80	28	8	80
11	7	70	29	7	70
12	9	90	30	1	10
13	9	90	31	10	100
14	10	100	32	9	90
15	4	40	33	8	80
16	7	70	34	9	90
17	8	80	35	7	70
18	8	80	Average	7.11	71.14

Table 2. Number and percentage of times each question was answered correctly

Question number	Number and percentage of Correct Answers
1	26 (74.3%)
2	26 (74.3%)
3	30 (85.71%)
4	23 (65.71%)
5	26 (74.29%)
6	28 (80.00%)
7	20 (57.14%)
8	18 (51.42%)
9	22 (62.86%)
10	30 (85.71%)

Exercise Physiology Final Exam Essays

- Explain the amount of ATP that can be regenerated with glucose anaerobically, glucose aerobically, and free-fatty acid. Briefly explain why this is the case.
- Define lactate threshold. Define VO₂max. Explain how these affect endurance performance.
- Considering the stress of aerobic exercise, what are the major adaptations that happen in the cardiovascular system that improve VO₂max?
- Considering the stress of aerobic exercise, what are the major structural and metabolic adaptations that happen in muscles that improves endurance performance?
- Considering the stress of anaerobic exercise, what are the major structural and metabolic adaptations that happen in muscles that improves sprint performance?

Question Topic	Below Expectation (1)	Beginning Understanding (2)	Proficient (3)	Advanced (4)
Q1. Metabolism- ATP regeneration pathways	Student provided no indication that the quantity of ATP in each of these cases increased. No explanation of the impact of mitochondria.	Student provided numerical quantities that increased over the fuel sources listed but did not fully explain why.	Student provided (mostly) correct numerical quantities of ATP. Student referred to mitochondria use of oxygen and provided an explanation.	Student provided correct numerical quantities for ATP amounts. The explanation for why included details for mitochondria use of oxygen and provided a discussion of electron use in generating larger amounts of ATP.
Q2. Lactate threshold and VO₂max	Student provided incorrect definitions for the metabolic variables.	Student provided definitions that were mostly correct and linked improving them to improved endurance.	Student defined the variables correctly and linked them to endurance through improving metabolic efficiency and/or reduced mechanisms of fatigue.	Student correctly defined variables and linked them to endurance performance in a manner that amplified their understanding of the two metabolic variables. Mechanisms of metabolic generation of ATP and oxygen use were explained in a manner that related them to specific mechanisms of fatigue with increased exercise intensity.
Q3. Cardiovascular adaptations that enhance VO₂max	The adaptations described were incorrect or not attributable to the cardiovascular system and would not improve VO ₂ max.	Aerobic stresses described were specific to the argument. The structural or functional adaptations were correct but limited to only 1 or 2 items. The adaptations were linked to how they would improve maximum oxygen consumption although they may not improve VO ₂ max.	Aerobic stresses described were specific to the argument. Structural and functional adaptations were fully and correctly described. The adaptations should increase VO ₂ max.	Aerobic stresses described were specific to the argument. Structural adaptations were linked with functional adaptations and both were fully and correctly described. The adaptations described were specifically linked to how they would enhance VO ₂ max.
Q4. Muscle adaptations that occur with endurance training	The stresses related to aerobic exercise were not correctly stated and the structural adaptations mentioned would not improve endurance performance.	Aerobic stresses described were reasonable to the argument. There were some possible structural or metabolic adaptations listed that were loosely related to endurance performance.	Aerobic stresses described were specific to the argument. The structural adaptations were correct. The metabolic adaptations demonstrated a reasonable understanding of aerobic function. Both adaptation sets were linked to how they would improve endurance performance.	Aerobic stresses described were specific to the argument. The structural adaptations were specific and correct. The metabolic adaptations demonstrated a high understanding of aerobic function. Both adaptation sets were specifically linked to how they would improve endurance performance.
Q5. Adaptations to anaerobic training/benefit performance	The stresses related to anaerobic exercise were not correctly stated and the structural adaptations mentioned would not improve sprint performance.	Anaerobic stresses described were reasonable to the argument. The structural or metabolic adaptations listed that were loosely related to sprint performance.	Anaerobic stresses described were specific to the argument. The structural adaptations were correct. The metabolic adaptations demonstrated a reasonable understanding of anaerobic function. Both adaptation sets were linked to how they would improve sprint performance.	Anaerobic stresses described were specific to the argument. The structural adaptations were specific and correct. The metabolic adaptations demonstrated a high understanding of anaerobic function. Both adaptation sets were specifically linked to how they would improve sprint performance.

Exercise Physiology cont.

1.1e Energy Needs and Metabolism

Question/Score	Below (%)	Beginning (%)	Proficient (%)	Advanced (%)
Energy Systems	1 (7.7%)	4 (30.8%)	6 (46.2)	2 (15.3%)
Lactate	11 (33.3%)	16 (48.5%)	6 (18.2%)	0 (0%)
Overall	12 (26.1%)	20 (43.5%)	12 (26.1%)	2 (4.3%)

1.1c Physiological Adaptations

Question/Score	Below (%)	Beginning (%)	Proficient (%)	Advanced (%)
Cardiovascular Adaptions	4 (13.3%)	14 (46.7%)	9 (30.0%)	3 (10.0%)
Aerobic	4 (50.0%)	2 (25.0%)	2 (25.0%)	0 (0%)
Anaerobic	1 (20.0%)	3 (60.0%)	1 (20.0%)	0 (0%)
Overall	9 (20.9%)	19 (44.2%)	12 (27.9%)	3 (7.0%)

Key Findings and Program Recommendations

- Anatomical Kinesiology students are performing at the appropriate level with content but may need to further develop their skills needed to interact with clients. Specifically, this recommendation includes giving more classroom opportunity to verbally explain joint movements and exercise instructions.**
- Biomechanics students have difficulty with the concept of torques. Math ability may be limiting their full understanding of the topic and interfering with conceptual understanding. Test questions may also need to limit when multiple ideas are presented in questions and answers.**
- Exercise Physiology students underperformed in demonstrating a graduating senior level understanding of metabolism (30.4% proficient) and adaptations to training (34.9% proficient). This is likely due to the introductory nature of the course and lack of coursework that is customarily taken as pre-requisites at other institutions, but are not at SMSU. Curriculum should be investigated to increase the proportion of students taking these courses (e.g. Anatomy & Physiology).**

Challenges

Exercise Science has grown rapidly. This growth has been exciting but has made it challenging to keep up with a large number of student majors on 4 different campuses. Having adjunct faculty deliver courses makes assessment challenging, in theory, but our colleagues on the 2-year campuses who teach our courses are very engaged in these collaborative processes. As our programmatic understanding of assessment has grown, we have had to refine the assessment timeline and even some of our assessment tools to ensure we are evaluating the SLOs consistently with our goals and delivery methods. The greatest challenge our program has faced regarding assessment is the time that it takes to coordinate our efforts and discuss the meanings of our findings. The next assessment cycle must include all learning outcomes at all campuses.

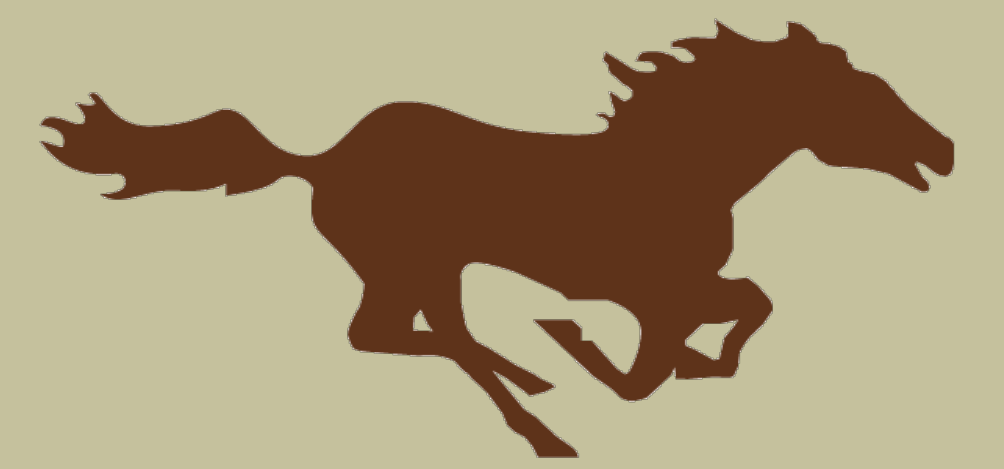
Next Steps

Start a 4-year assessment cycle.

Include all 4 campuses in all components of the assessment cycle where there are overlapping courses. Some learning outcomes will be assessed differently since students may take some courses in the major offered by the two-year campus.

Critical Thinking Gains in LEP 100: First Year Seminar and HONR 140: Introduction to Honors

Dr. Brett Gaul, Honors Program Director and Professor of Philosophy



The Modified Moorburg Letter

The Modified Moorburg Letter is a critical thinking assessment developed by Brett Gaul that is based on the Ennis-Weir Critical Thinking Essay Test. After reading an eight paragraph long letter to the editor (The Moorburg Letter), students identify the conclusion and evaluate the argument.

While the original Ennis-Weir requires students to write nine paragraphs—one paragraph evaluating the reasoning in each paragraph of the letter and then a paragraph making an overall assessment of the reasoning—the Modified Moorburg Letter makes grading easier by requiring abbreviated assessments of the reasoning in each paragraph and only one written paragraph about the overall evaluation of the argument.

Modified Moorburg Letter Scoring

In the original Ennis-Weir, paragraphs 1-8 are worth up to three points each, and paragraph 9 is worth up to five points. Best possible score: 29.

In The Modified Moorburg Letter, students receive up to two points for identifying the conclusion, up to three points for their evaluation of each paragraph, and up to three points for their overall evaluation of the argument. Best possible score: 29.

Pretest and Posttest

Students in all sections of LEP 100: First Year Seminar are supposed to take The Modified Moorburg Letter twice—once before using Morrow and Weston's *A Workbook for Arguments*, and once afterward. I have taught 10 sections of LEP 100: First Year Seminar.

Average Overall Modified Moorburg Letter Scores for My Sections of LEP 100

Semester	Pretest	Posttest	Gain
Fall 2010	10.4	18.4	8.0
Fall 2011	11.6	11.9	.3
Sp. 2013	9.3	8.2	-1.1
Fall 2013-1	9.6	13.3	3.7
Fall 2013-2	8.9	11.0	2.1
Fall 2014-1	7.6	10.7	3.1
Fall 2014-2	10.1	11.2	1.1
Fall 2016	10.1	10.3	.2
Fall 2017	9.4	13.3	3.9
Fall 2018	7.3	11.3	4.0
Average	9.4	12.0	2.6

Percentage of My LEP 100 Students Able to Identify the Conclusion Correctly

Semester	Pretest	Posttest	Gain
Fall 2013-1	17%	70%	53%
Fall 2013-2	21%	73%	52%
Fall 2014-1	4%	96%	92%
Fall 2014-2	11%	81%	70%
Fall 2016	32%	56%	24%
Fall 2017	21%	87%	66%
Fall 2018	24%	76%	51%
Average	19%	77%	58%

HONR 140: Introduction to Honors

Like LEP 100: First Year Seminar, HONR 140: Introduction to Honors also counts for MnTC Goal 2: Critical Thinking. Since I teach the latter course as well, I also use The Modified Moorburg Letter in it. I have taught three sections of HONR 140: Introduction to Honors.

Average Overall Modified Moorburg Letter Scores for HONR 140

Semester	Pretest	Posttest	Gain
Fall 2016	13.2	15.2	2.0
Fall 2017	11.4	14.9	3.5
Fall 2018	11.0	14.3	4.3
Average	11.9	14.8	2.9

Percentage of HONR 140 Students Able to Identify the Conclusion Correctly

Semester	Pretest	Posttest	Gain
Fall 2016	44%	100%	56%
Fall 2017	42%	83%	41%
Fall 2018	23%	70%	47%
Average	36%	84%	48%

Analysis

Although the average increases in The Modified Moorburg Letter scores from pretest to posttest of 2.6 points in LEP 100 and 2.9 in HONR 140 might not seem like much, these amount to a **28%** average increase in LEP 100 and a **24%** average increase in HONR 140.

While these increases represent an improvement in the students' ability to evaluate an argument, even greater gains in critical thinking were made in the students' ability to identify the conclusion of the argument correctly. In LEP 100, there was a **305%** average increase in the number of students who were able to identify the conclusion correctly. In HONR 140, there was a **133%** average increase.

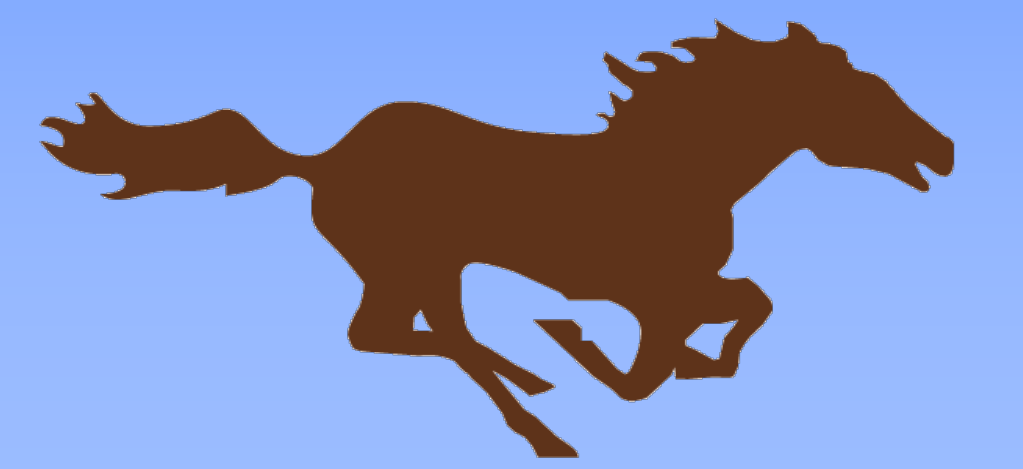
The takeaway: At least regarding the critical thinking skills assessed by The Modified Moorburg Letter, both LEP 100 and HONR 140 produced measurable gains in critical thinking that should not be dismissed.

Acknowledgements

I thank Dr. Maureen Sander-Staudt and Dr. Steve Kramer for their feedback on The Modified Moorburg Letter.

Promoting Water Quality Stewardship through Student Mentoring and River Monitoring

Emily Deaver, Environmental Science & Scott Peterson, Psychology



Overview of the Project

In southwest Minnesota, over 80% of a typical watershed is used for agriculture, which impacts stream water quality. Area citizens must be engaged in water quality efforts if progress is to be made in protecting local waterways. An Environment and Natural Resources Trust Fund (ENRTF) grant facilitated a partnership between Southwest Minnesota State University (SMSU), area public schools, and state agencies.

SMSU undergraduates served as mentors to high school and middle school students while promoting stewardship of clean waters through river monitoring. SMSU undergraduates took a semester long course that taught water quality content and mentoring techniques. Students traveled to public schools where they mentored 10th grade & 7th grade students in hands-on experience with test kits and meters. All students then traveled to the Redwood River to monitor 10 parameters at three sites. A total of 644 students were involved in the project over a two year period (fall 2016-spring 2018).

The project builds on a program started in 2004 which established a long-term working relationship between SMSU and area public schools. This effort focuses on the SMSU Core Value of **civic and community engagement** to build mutually beneficial partnerships and provide rich opportunities for learning that go beyond the traditional classroom.

Approach to Assessment and Learning Outcomes

The **goals** of the program are for college, high school and middle school students in Southwest Minnesota to:

- gain knowledge and understanding of local and state water quality issues
 - Outcome 1: improved score on Post Content Test compared to Pre Content Test
 - Outcome 2: 80% score \geq 75% on Post Content Test
- develop skills needed to measure local water quality
 - Outcome 1: 70% of students score 75% or better on lab practical exam
- develop an awareness and sensitivity to challenges connecting agriculture and water quality
 - Outcome 1: \geq 50% of the students indicate that they value water conservation efforts and express a willingness to take an active role in community based conservation efforts

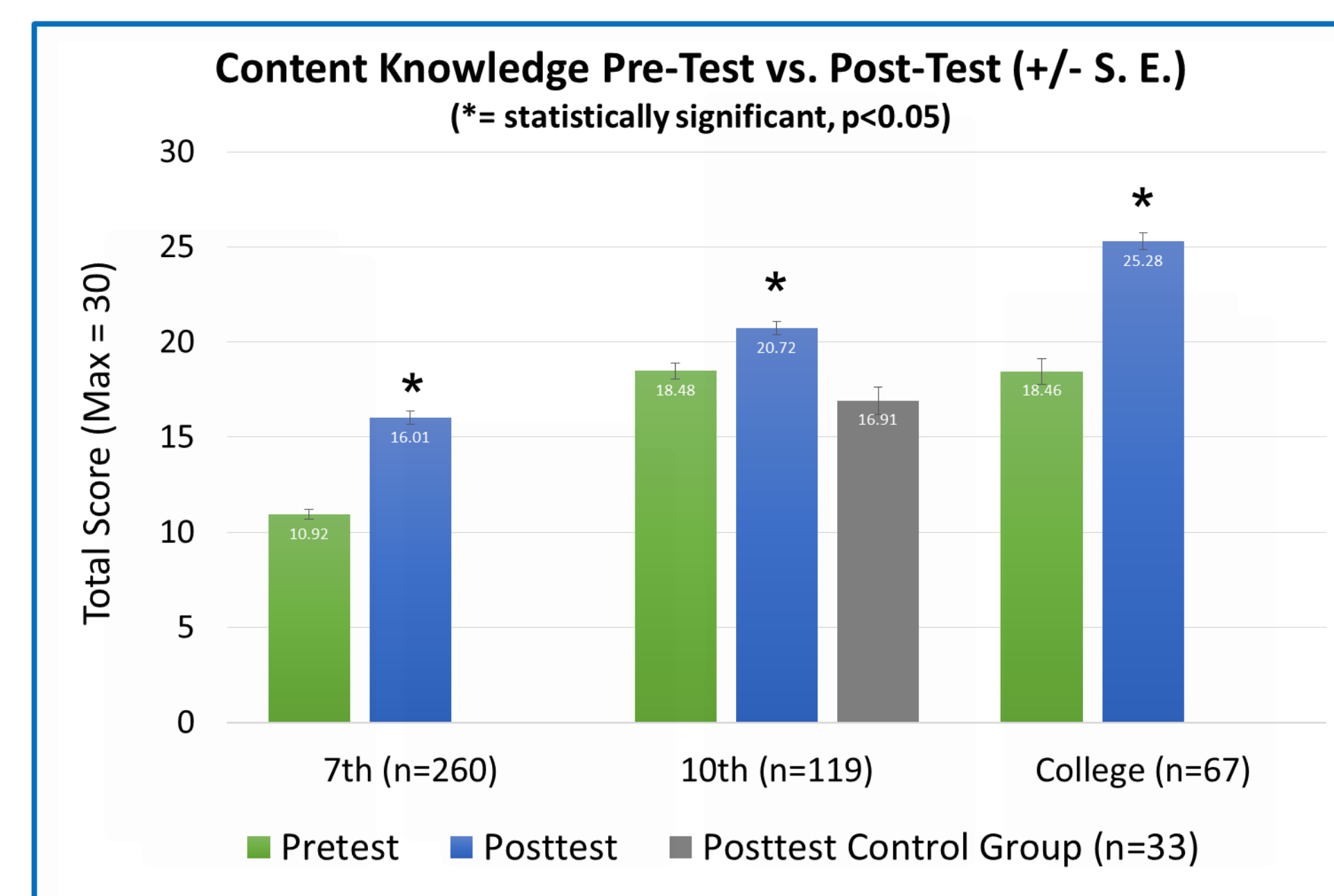


Students at Wayside Rest Site, fall 2017

Assessment Tools

- Created Pre-Post Content Tests to determine the change in content knowledge. The same test was administered to all three grade levels
- College students took a Lab Practical demonstrating knowledge and ability to teach water monitoring equipment
- Developed surveys for Water Conservation Attitudes, Civic Engagement and Stewardship. Used literature to find existing surveys which were adapted to this project
- Each question on Civic Engagement Survey scored on a 6-point Likert scale (1= Strongly Agree, 6 = Strongly Disagree)
- Each question on Stewardship Survey scored on a 10-point Likert scale (1=Quite Uncertain, 10=Quite Certain)
- Paired-samples and independent-samples t tests used to compare pretest vs post test scores, and treatment vs. control group scores, respectively

Assessment Data



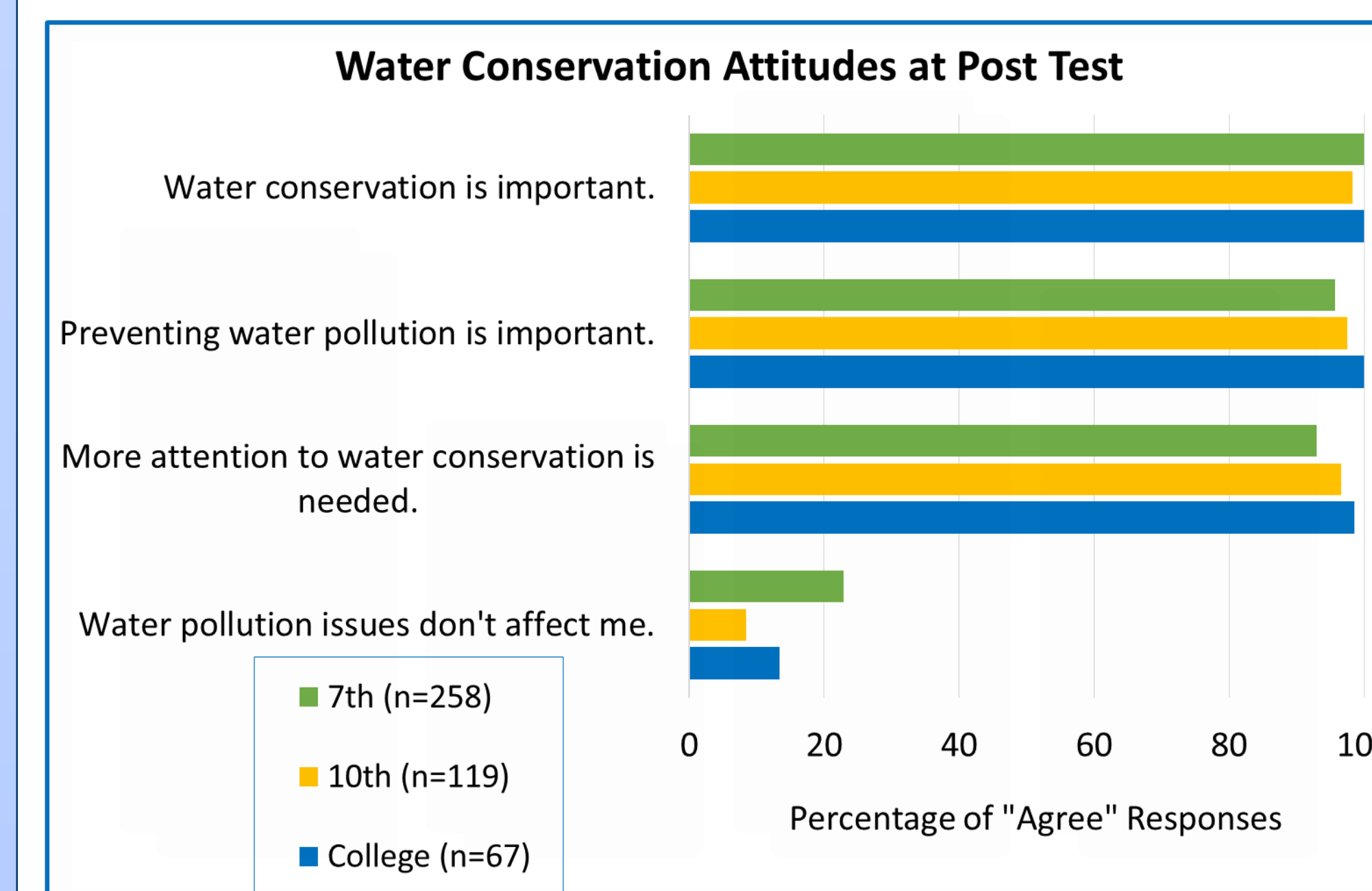
- Improved scores on the post content test at all grade levels, compared to the pre-test & 10th graders higher than control group not involved in project
- 75.0% of College students scored \geq 75% on post test
- 41.9% of 10th grade students scored \geq 75% on post test
- 9.1% of 7th grade students scored \geq 75% on post test

Overall College Lab Practical Scores

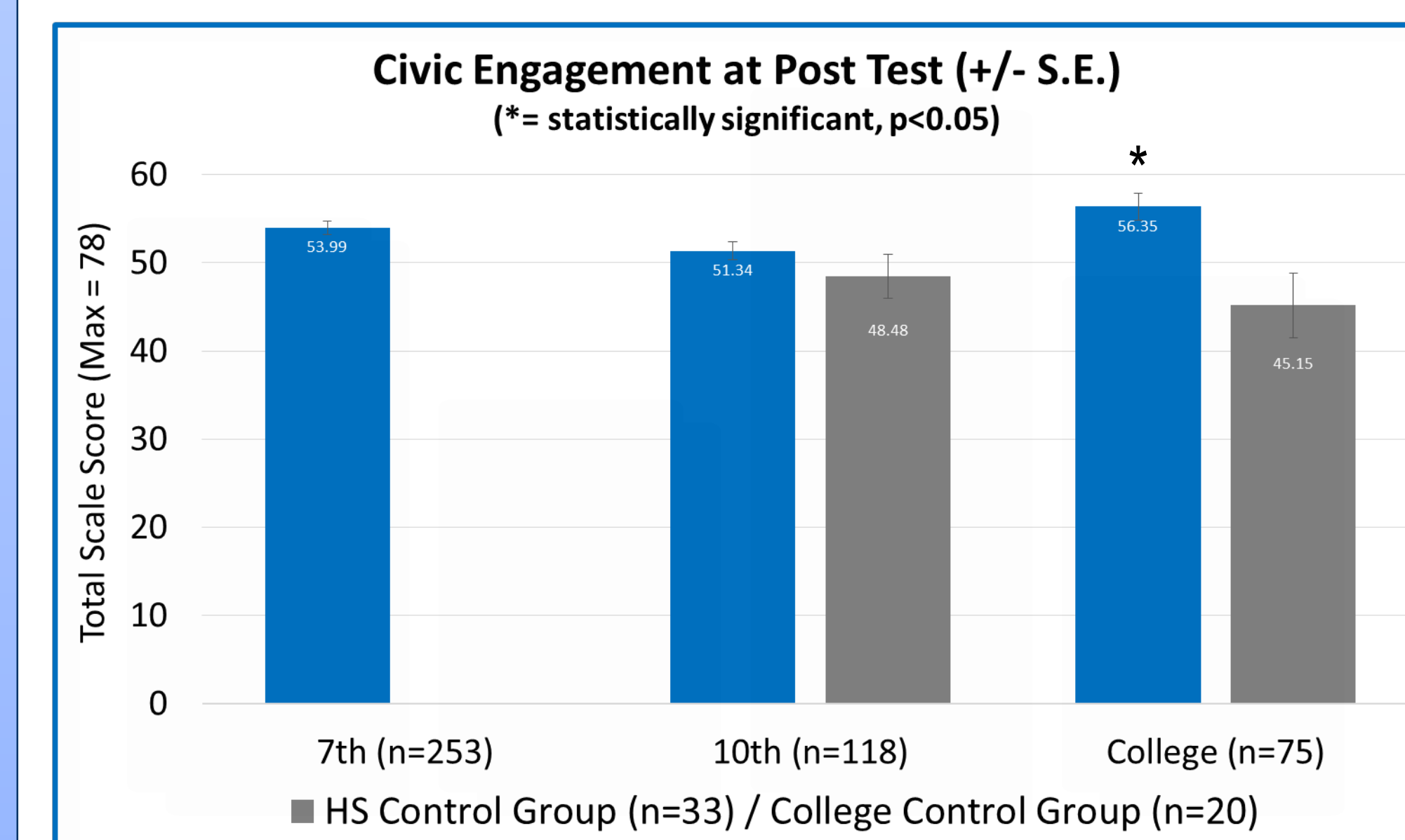
No. of Students	% Scoring \geq 75%	% scoring $>$ 80%	Range of Scores
83	76.24	60.24	10-100

- Individual classes were quite variable- one semester 86% of students scored \geq 75%, but fall 2016 only 57% achieved that score

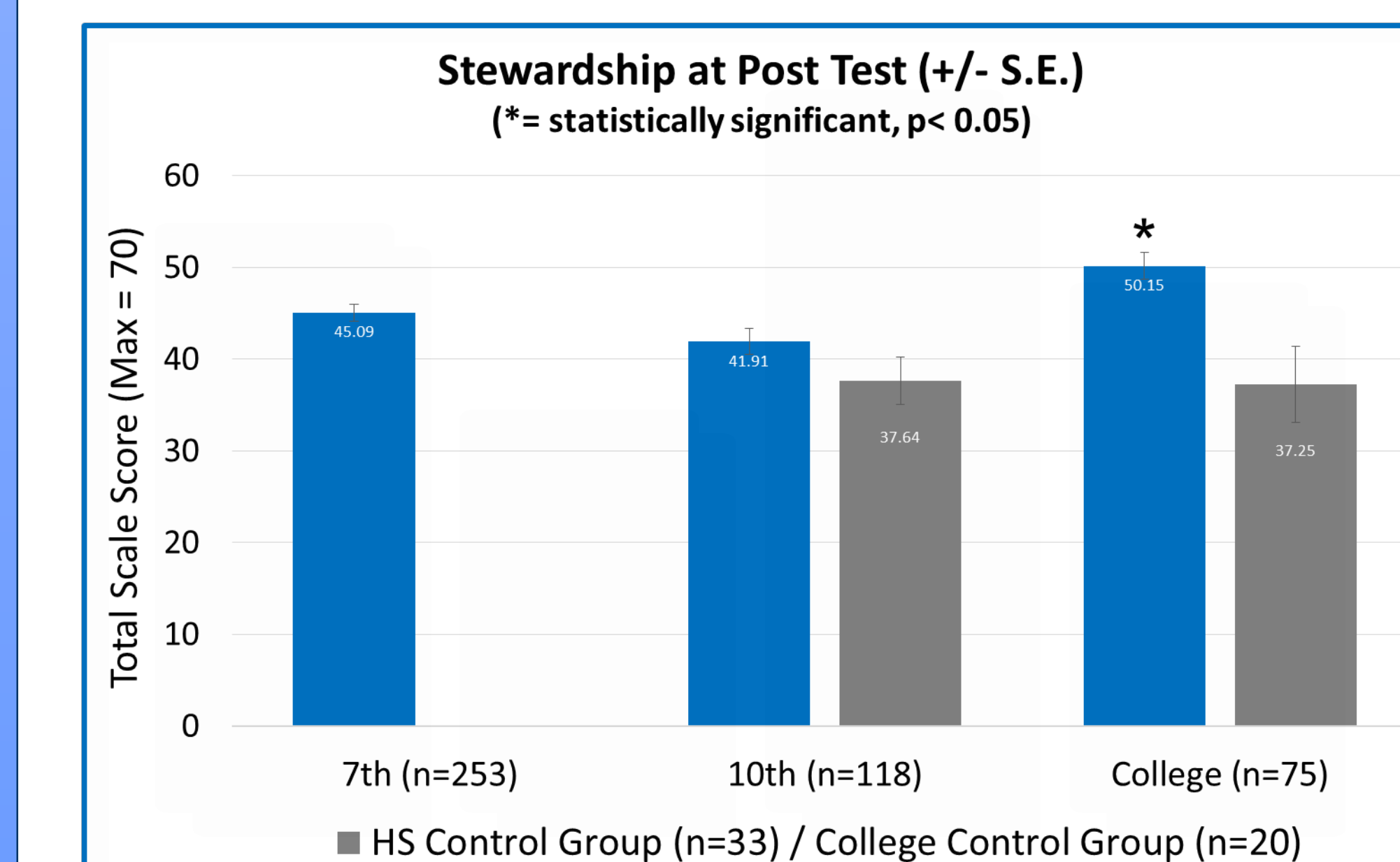
Assessment Data, cont.



- \geq 95% of students at all three grade levels indicated that they value water conservation efforts



- \geq 70 % of students at all three grade levels indicated that they had favorable attitudes toward civic engagement surrounding water conservation issues (total scale score above neutral 45.5)
- College students involved in project scored significantly higher on civic engagement attitudes than students not involved in the project



- College students scored significantly higher on stewardship attitudes than college students not involved in the project
- 100% of students at all three grade levels expressed willingness to take an active role in community based water conservation efforts

Discussion

Some goals and outcomes were met, but others were not:

Goal 1, Outcome 1 was met with significantly improved scores on the Post Content Test for all grades levels.

Goal 1, Outcome 2: 80% of students score \geq 75% on Post Content Test was not met. The same test was used for all three grade levels, which clearly did not work well. Verbal assessments indicated better understanding than was demonstrated on the written test. In the future, the test will be created by the respective classroom teachers to ensure that language and wording is appropriate to the grade level.

Goal 2, Outcome 1: 70% of students score 75% or better on lab practical exam was met when evaluated as a whole, but was quite variable from one semester to the next (range 57% to 86% of class scoring \geq 75%). The trend was toward better scores in most recent classes, which indicated that changes in methods of teaching the material was having a positive impact.

Goal 3, Outcome 1: \geq 50% of students indicate that they value water conservation efforts and express a willingness to take an active role in community based conservation efforts was met by 100% of the students at all grade levels.

There was also a significant difference in Civic Engagement and Stewardship attitudes of college students involved in the project compared to those not involved.

This project focused on the SMSU Core Value of **civic and community engagement** to build mutually beneficial partnerships and provide rich opportunities for learning that go beyond the traditional classroom. Field-based/experiential learning with community partners is considered by AAC&U to be a 'high impact' instructional strategy (Kuh, 2008) which increases rates of student engagement and retention.

College students benefitted more from this project than the other grade levels, as evidenced by the highest scores on all assessments (content knowledge, civic engagement & stewardship surveys). This is not surprising as mentoring has been shown to reinforce knowledge, improve communication skills and promote self-reflection (Howard, 2018). Instilling a strong stewardship ethic in students at all grade levels was also a significant outcome of this study.

Literature Cited

Howard, Louise. May 11, 2018. The Benefits of Being a Mentor. Educause Review. <https://er.educause.edu/blogs/2018/5/the-benefits-of-being-a-mentor>

Kuh, George D. 2008. High-Impact Educational Practices: What They Are, Who Has Access to Them, and Why They Matter, AAC&U 44 pp. <https://www.aacu.org/leap/hips>

Acknowledgements

Thanks to project partners Holly Knudson, Marshall High School; Carrie Sueker, Marshall Middle School; Kyle Jarcho, MN DNR; Diana Macziewski, MPCA & Dr. Thomas Dilley for providing the college control class.

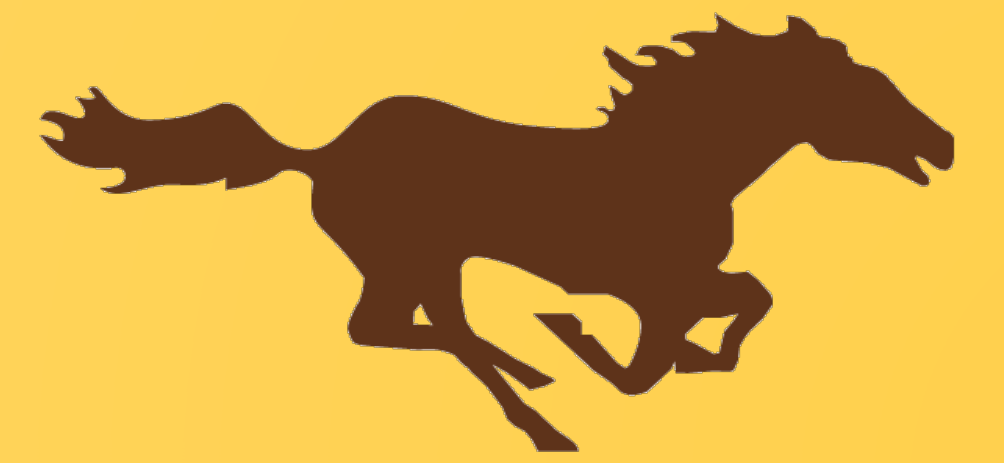
Funding was provided by the MN Environment and Natural Resources Trust Fund (ENRTF) as recommended by the Legislative-Citizen Commission on Minnesota Resources (LCCMR).



Assessing LEP and Program Goals Using Written Assignments



Cindy Aamlid, Sociology Program



Sociology Program Goal and Alignment with LEP Goal

Goals and Learning Outcomes Assessed:

Sociology Program Goal 1: Knowledge base of sociology. Demonstrate understanding of the discipline of sociology, major concepts, and sociology's role in contributing to our understanding of social reality.

Student Learning Outcome (SLO)

1. Apply sociological concepts to at least one area of social reality

LEP Goal 4: Understand both physical and social aspects of the world and their place in it
Suboutcome: Demonstrate knowledge of concepts, methods, and theories designed to enhance understanding of the natural world and human society

Programmatic Approach to Assessment

- Program SLO 1 and LEP Goal 4 assessed on a rotating basis
 - Assessed in Fall 2017
 - Previous assessment completed in Fall 2012
- Course identified for assessment:
 - SOCI 101 Introduction to Sociology
- Participants: Most students are freshmen and sophomores; they are taking the course to fulfill a general education requirement; most are non-sociology majors
- Assignments used in assessment: Five written assignments over the course of the semester
 - Each assignment included the definition of at least two sociological concepts; application of the concepts to examples from a video, article, or activity; and then a summary analysis.
- Assessment tool used: created rubric for each assignment
- Assessment benchmark from 2012:
 - about 63% of written assignments demonstrated successful application of sociological concepts to everyday life

Assessment Strategy and Results

Assessment Strategy: In order to compare this assessment with the 2012 data, we used a similar assessment strategy. The grading rubric for the assignments included the following criteria:

- Correct sociological definition
- Detailed application of concepts with examples
- Detailed analysis.

For this assessment, the student grades on the papers were then divided into the following categories:

- Exemplary (grades of 90-100%): demonstrated accurate understanding of the concept and provided sufficient, detailed examples
- Satisfactory (grades of 70-89%): demonstrated some understanding of the concepts with some examples
- Needing improvement (grades below 69%): limited understanding, lacks depth and detail

Sampling of student scores:

- A systematic sampling of student scores from each assignment was selected for this assessment.
- Scores of 0 were dropped because they represented students who did not submit a paper.
- Every 3rd score was selected, starting in different spots in the class list for each assignment. For example, I began counting every 3rd score with student 1 for assignment 1, student 2 for assignment 2, etc.

Results:

- The sociology program faculty consider both exemplary and satisfactory answers as demonstrating reasonable knowledge of sociology.
- Overall, students provided exemplary or satisfactory application of the concepts in 79.0% of the answers (see Table 1).

Table 1. Comparison of Topic Areas and Scores

Scores	Topic Areas					
	Totals N=105	Norms N=22	Culture N=22	Social Structure N=21	Family N=20	Deviance N=20
Exemplary	46 (43.8%)	8 (36.4%)	7 (31.8%)	11 (52.4%)	10 (50.0%)	10 (50.0%)
Satisfactory	37 (35.2%)	7 (31.8%)	10 (45.5%)	8 (38.1%)	3 (15.0%)	9 (45.0%)
Needs Improvement	22 (21.0%)	7 (31.8%)	5 (22.7%)	2 (9.5%)	7 (35.0%)	1 (5.0%)

The students were most successful in illustrating the following concepts:

- Deviance (95% were satisfactory or above)
- Social structure (90.5% were satisfactory or above)
- Culture (77.3% were satisfactory or above)

The students demonstrated lower proficiency with the concepts of

- Norms (67.2% were satisfactory or above)
- Family (65% were satisfactory or above)

Conclusions And Reflections

- Comparison to the benchmark results from 2012:
 - In 2017, students demonstrated satisfactory or exemplary application of sociological concepts in 79% of their written work
 - In 2012, students demonstrated satisfactory or exemplary application in 63% of the papers
- Students were able to demonstrate a solid foundation of sociology knowledge as evidenced by the application of the sociological concepts to social reality in their written answers. The assessment of student scores indicates that students met both the program SLO and LEP goal.
- The scores in 2017 were higher than the first benchmark from 2012. This may reflect some changes implemented in SOCI 101:
 - Students now write eight shorter assignments. This is a change from 2012 when students were writing one application paper. The smaller assignments provide students with more experience with applying sociology to everyday life and a better understanding of the social aspects of the world.
 - In 2017, two senior sociology students provided a weekly 2-hour tutoring session. The average attendance at tutoring ranged from 2-8 students. These students included international students who needed more assistance with understanding American culture or writing clarity.

Next Steps

- Revisions to the assignments used in class are ongoing. While the concept coverage will remain the same, the readings, videos, and articles used will be updated. The strategy of shorter writing assignments will continue, as students are showing more proficiency with applying sociology.
- Recruit junior/senior sociology students to offer weekly tutoring for SOCI 101.

Acknowledgements

Thanks to Vicky Brockman and Kerry Livingston, my sociology colleagues, for all the collective work on assessment.