Assessment Times Newsletter

Harold Washington College Assessment Committee

Fall 2019

Inside the Snow-Globe: Shaking Things Up from the Inside
By Erica McCormack, Chair

Assessment, in contrast to evaluation, is a broad inquiry into student learning and how it can be improved. When we describe our culture of learning assessment at HWC, some of the first terms we use to describe it are "faculty-led." We are proud that that has been the reality since the HWC Assessment Committee (HWCAC) was built in 2003. Since that time, 43 faculty members have held leadership positions on our committee, and even more have brought their content-area expertise and commitment to student learning to our weekly meetings over the years. Please consider being part of this tradition by joining us in room 1046 from 3-4 PM every Wednesday.

I joined the committee in Spring 2012 as an untenured, full-time faculty member, and after serving in liaison and coordinator roles since Fall 2012, I have now stepped into the role of Chairperson. I am humbled to follow in the footsteps and grateful to have benefited from the generous mentorship of former assessment chairs like Michael Heathfield, Jennifer Asimow, Carrie Nepstad, and Jeffrey Swigart. I have learned so much from each of them as well as the other HWCAC members, and I continue to learn every week from such insightful colleagues (Did I mention that you're welcome to join us on Wednesdays from 3-4 PM in room 1046? And that we have snacks?).

My discipline is Humanities, so excuse me while I go off, briefly, on a nerdy tangent: One of my favorite authors in college was E.M. Forster. He wrote *A Room with a View* in 1908 and then penned a much lesser-known story called "A View Without a Room" for his novel's 50th anniversary. He described that story as a "prophetic retrospect," and this phrase has come to my mind many times this semester as our committee has been conducting a "self-study" on our General Education assessment practices, taking stock of our history and simultaneously looking ahead to the future. We hope to investigate and assess student learning more robustly and tell even more compelling stories about our students' learning as a result of this self-study.

An important component of the six-stage assessment process that we have practiced is "closing the loop." This refers to everything we do once we get some answers from our data: all the changes we implement in our individual classrooms based on assessment report recommendations, all the curricular changes we put through the Proposed Academic Curriculum Changes (PACC) process that are informed by the assessment data, and more. We have been engaging in this process at the General Education level since 2003 and in smaller units since 2012. Those smaller unit-level assessments have often yielded more compelling insights into our students' learning, and we are trying to now consider how we might revitalize our General Education assessment by taking what we've learned from all our previous General

Education assessment efforts and applying that to our future work.

This self-study process has been challenging, messy, and sometimes has perhaps even seemed like a mistake, but the committee has been willing to step off its familiar path this semester to explore a bit. It has occasionally been described by committee members (myself included) as a "revolution" and "explosion," but I want to think of it instead as a gentle shaking up, like one would use to enjoy the sparkling beauty of a snow globe. We are not trying to break the snow globe; rather, we are hoping to throw in the air everything we have learned from our collective experience about assessment, and as those pieces settle back down, guide them into a shape that will be more conducive to answering our authentic questions about student learning.

This "shake-up" is, from certain angles, less a revolution and more a natural progression out of the work that has built our strong reputation in learning assessment—the conversations we're having and the reflection we are doing are part of how we are closing the loop (after all, this retrospective process was one of the recommendations of our most recent Humanities General Education assessment). As this conversation takes a more coherent shape, we will be seeking input from the larger HWC community—we want to know your thoughts about student learning, and we want to let those guide our work.

After all, what would become of our assessment work if our committee didn't ask challenging questions about student learning, even about the assessment process used to gather that information itself? What would a snow globe be if no one bothered to shake it? Please excuse us as the snowflakes swirl around; we are confident that when they settle, they'll reveal a path forward for our future work that is informed by our past efforts, shaped by our current questions, and most importantly, guided by our commitment to improving student learning. Thank you for the work each of you does every day to support student learning, and please consider joining us on Wednesdays in room 1046 from 3-4pm to see what this snowglobe looks like from the inside and to help guide our next steps forward.

General Education Learning Assessment
By Carrie Nepstad, Vice-Chair

Quantitative Reasoning Assessment

Baby How do you Sleep When you Lie to Me with Stats: A Quantitative Reasoning Report is the provocative title of the most recent report released by the HWC Assessment Committee (HWCAC). The report title is inspired by the Sam Smith song, "Baby, How do You Sleep When You Lie to Me?", which seemed fitting as the committee considered one of the emerging themes of this assessment-- our students struggle with interpreting mathematical information. Particularly, our students struggle with recognizing misleading information in graphs. In discussing the findings, committee members recognized that faculty also struggle with misleading information on graphs as we considered various misleading graphs (some even within our own institution).

It has become clear to the committee that this skill continues to be important to us as something we want our students to know, and to be able to do upon completion of a degree at HWC. This skill is identified as a general education student learning outcome (SLO), and the Quantitative Reasoning Assessment was designed to assess each of the SLOs listed below:

The student will be able to:

- Interpret mathematical models such as formulas, graphs, and tables.
- Represent mathematical information symbolically, visually, numerically, and verbally.
- Apply arithmetical, algebraic, geometric, or statistical methods in order to solve problems.
- Estimate values with reasonable accuracy when exact calculations are impossible, impractical, or unnecessary.
- Recognize and use connections within mathematics and between mathematics and other disciplines.

One of the most compelling results described in the Quantitative Reasoning report is that completing STEM courses, Business-Economics courses, or a higher number of any courses did not seem to give students an advantage in terms of interpreting misleading graphs or in explaining specific calculations (in this case, unemployment rates). This led the committee to make the recommendation to all faculty and staff to encourage students to take a statistics class and that instructors include discussions about misleading graphs or other misrepresentations of data as appropriate to their disciplines. In addition, instructors are encouraged to consider more real-world discussion problems that involve contrasting two or more numerical results.

The committee also recommends that, within our HWC community, we engage in more professional development opportunities to build our own statistical and quantitative literacy, and that we hold ourselves and the institution accountable in presenting honest, accurate statistics.

For more detailed information about findings and recommendations, please read the full report.

You can find all HWCAC reports and documents on the HWCAC website.

A General Education Self-Study

This semester and through this academic year, the HWCAC is undergoing a self-study focused specifically on the assessment of student learning in general education. This involves an examination of the objectives and student learning outcomes (SLOs) that have been in place for over a decade, the processes the committee has used to assess those outcomes, and the recommendations the committee has made based on findings. The committee will provide ongoing updates as this self-study progresses.

The assessment of student learning in general education is the foundation of the committee's work and has been a major component since it was redesigned in the early 2000s. In 2012, the committee received national recognition from the Council of Higher Education Accreditation (CHEA). The CHEA award was based on the significant work the HWCAC had done to build the assessment program specifically in terms of general education. In the Higher Learning Commission (HLC) reaffirmation process in 2018, the committee's contributions were specifically highlighted by the peer reviewers.

Clearly, this work has been recognized as of high quality, yet the committee has frequently felt challenged by the 7-year timeline for assessing general education SLOs, and the time it takes to report results. In addition, the committee has produced many recommendations based on findings over the years, and although individual faculty members have reported their personal use of these findings, it's difficult to pinpoint how assessment in general education is directly impacting student learning. With those challenges in mind, the committee voted to do a comprehensive self-study on assessment practices in general education during the 2019-2020 academic year. The first few weeks of the self-study have already generated spirited dialogue and exciting prospects for the redesign of our work, and we look forward to engaging the HWC community in that conversation - stay tuned!

Research Analysis: What's wrong with this graph?
By Fernando Miranda-Mendoza

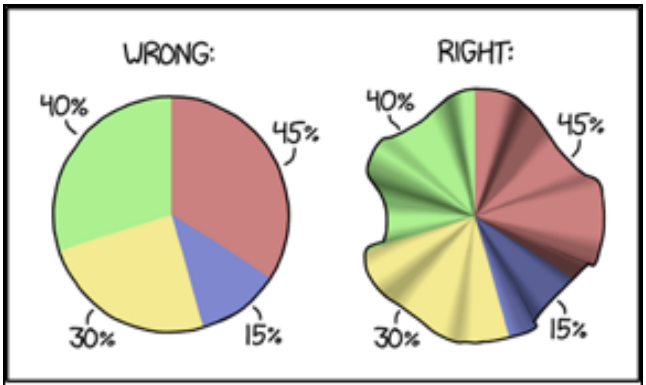
Visual representations of data can be very useful. Graphs can display complex features in a simple way, uncover hidden connections not easily discernible from raw data, help convey sophisticated conclusions, etc. Unfortunately, visual displays often generate confusion and can be used to mislead or misrepresent data. Modern software tools empower almost anyone with the ability to produce high quality, extremely professional, and sophisticated graphs, all with minimal effort. The characteristics that make these tools powerful (colors, shades, 3D effects, etc.) are frequently the source of misleading graphs. Visual displays of data are virtually found across all digital platforms. Many of these displays are accidentally misleading, while others are outright malicious misrepresentations. Our modern society demands citizens with a high level of quantitative skills, especially with the ability to understand graphs and other displays.

The HWC Assessment Committee's (HWCAC's) 2017 Quantitative Reasoning (QR) report was finally completed this semester (see https://www.ccc.edu/colleges/washington/departments/Pages/Assessment-gen-ed.aspx). Among several other interesting discoveries, we found that, overall, most students struggled to identify a misleading graph. Even those students with a relatively large number of successfully completed Science, Technology, Engineering, and Math (STEM) courses (where we would expect them to have extensive exposure to various types of graphs) did not perform better. It seems that, regardless of background and intended field of study, most students failed to recognize features that may make a graph misleading.

Although a little disheartening, this result must be seen as a call for all of us to be wary of all visual displays, especially those dealing with important data. Also, we should work to devise ways to help students gain the necessary skills to help them detect when a graph is misleading.

Fortunately, several efforts have been made to improve these skills. A free online weekly feature (mostly aimed at students from grades 7–12+) from the American Statistical Association (ASA) and *The New York Times* called "What's going on in this graph?" (https://www.amstat.org/ASA/Whats-Going-on-in-this-Graph.aspx) presents readers with modern and relevant visualizations, challenging them to answer various insightful questions. Moreover, a repository of nonsensical visualizations, mostly from the media, called "WTF Visualizations" (https://viz.wtf/) collects various misleading displays submitted by users and encourages discussions about what is wrong with those visualizations. We hope that our students become familiar with these types of resources and improve their skills at spotting wrong graphs.

By its very own nature, statistics can, indeed, be misleading. After all, it is a human enterprise that attempts to draw inferences from incomplete information. Randomness, errors, and approximations are always part of the process. No "ultimate answers" exist. Even if educated citizens are not trained in all the intricacies of statistics, we hope that everyone can confidently answer the question: "What's wrong with this graph?"



Source: https://xkcd.com/2031/

Co-Curricular Assessment: Learning Before, Behind, and Beyond the Classroom
By Michael Heathfield

While nothing, as yet, has shaken the foundational assumption that the student/teacher relationship is a key contributor to student learning outcomes, there are many other intentional programs, services, and opportunities that combine to build a successful college. Student success in college requires a whole team of people surrounding classroom learning.

HWC's institutionally-supported and faculty-sustained Assessment Committee has had a keen eye on student learning outcomes *outside* of the classroom for some time. This additional focus, on a broader assessment sweep before, behind, and beyond the classroom, was confirmed and supported in our very successful HLC Reaffirmation in fall of 2018. Did I mention our assessment culture has been nationally and internationally recognized?

Many college employees provide these essential co-curricular programs, services and opportunities. Indeed, we have 68 full-time employees and 23 part-time employees working in these areas. This team has had sustained quality leadership from Dean Wendell Blair for some considerable time now (as we are consistently learning, a rare longevity within HWC leadership!).

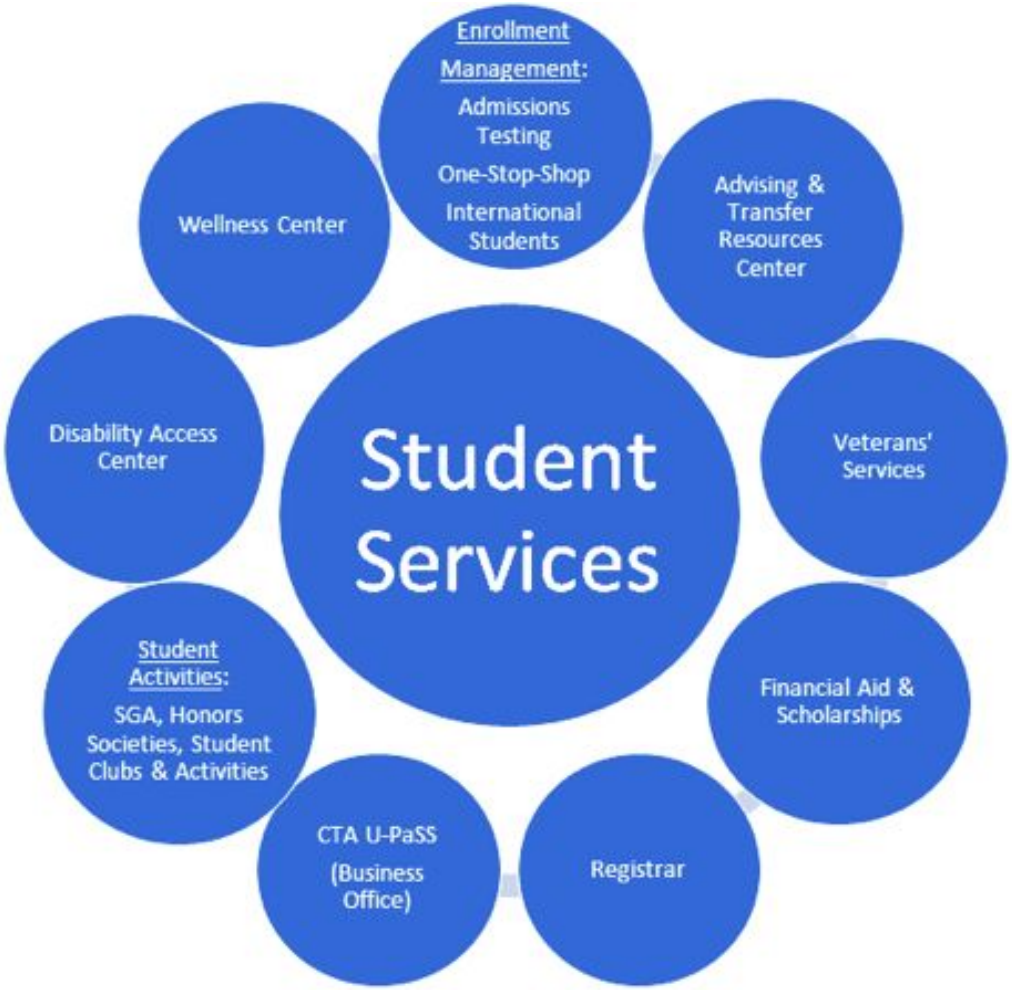
Co-curricular areas of our operations provide the essential scaffolding to support, surround, embed, and sustain student learning outcomes to feed vital student success. At HWC, this work encompasses nine specifically identified operations delivered by a committed team of employees. HWC also has interns and student workers delivering in some of these areas too. We are all probably familiar with many colleagues working in these important areas of college life. Student Services operates within the Mission of HWC and also provides their own mission for the specific work they deliver for our students:

> *"The mission of Harold Washington College Student Services is to serve as a network of student-centered support and resources, committed to complementing quality instruction to complete a balanced 2-year, urban college experience. We offer co-curricular support to students from recruitment to graduation and transfer.*
>
> *The Student Services Department assists students in selecting an academic pathway that aligns with their career goals, provides ongoing support through completion and graduation, offers career and transfer assistance, supports student clubs and organizations, and provides support for veterans and students with disabilities."*

Co-curricular learning cohabits our small building with classroom learning to provide an essential college-wide context of investment in both strong student learning outcomes and student success. While much is still "on-ground" there will be newer imperatives to move these operations also "online."

Co-Curricular Programs, Services, Resources and Opportunities (CCPSRO) are also very different in the range and scale of their operations. Take a look at the graphic to see what is involved at HWC. CCPSRO units are also very different in how they are staffed and how evolved they are in establishing systematic Student Learning Outcome (SLO) assessment processes. For sure, all areas are very used to collecting a great deal of data, but in large part this is output data about students, services, usage, and other context specific issues. Assessing SLOs is a newer lens for many CCPSRO areas.

Co-Curricular Programs, Services, Resources and Opportunities (CCPSRO)



Student Learning Outcomes

This new area of Assessment Committee work will build on the strong work already on the ground in two of these nine specific CCPSRO areas: the Wellness Center and the Transfer Center. To progress in these two initial areas, collaboration will be the key. Busy services and busy staff welcome assessment support to the work they do, adding value and hopefully not workloads! With a current transfer rate of 55.2%, HWC clearly does very well in this area – the overall CCC rate as of November 7 is 50.1%. But what specific student learning outcomes are there for students using our Transfer Services? Key SLOs for aspects of Transfer Services are that students can:

1. Attain knowledge of schools that give up to full-funding;
2. Develop an understanding of how to read their Financial Aid award letters;
3. Explain which school is best for them;
4. Compose a list of their top ten schools;
5. Identify scholarships for which they are most qualified; and
6. Demonstrate how to have a successful admissions interview

HWC's Wellness Center, the originator of the CCC Wellness Center model, has seen a 100% growth in the number of students using services over the past three years. We live in

stressful times. But use of Wellness Services is an operational output, not an SLO. What student learning outcomes are expected from sustained use of Wellness Center services? Students should learn to:

1. Manage challenging or crisis contexts to support their overall wellbeing;
2. Distinguish between thoughts, feelings and behaviors that support wellbeing and those that hinder positive outcomes;
3. Use diagnostic testing results to build wellness around areas of strength and concern;
4. Locate appropriate support for their needs beyond the HWC context; and,
5. Minimize risks to holistic success at HWC and life beyond college.

These specific SLOs are measurable, realistic, practicable and time-dependent. So they are assessable. This is going to be a very interesting few years as the Assessment Committee and a broader group of Student Services colleagues establish our first college-wide moves in this exciting direction. There is much new "yeoman's effort" to do here and no doubt there will be much to report in our HLC Reaffirmation Report in 2022. Oh joy, oh rapture!

Assessment of Online Learning
By Yevgeniya Lapik

Introduction and Background

For a few decades the world of academia has been having an appearance of debate regarding the effectiveness of "non-residential" forms of education, and, more recently, a technological progress focused critical public eye on online delivery mode. The individual comparative studies of the online (OL) vs. face-to-face (F2F) learning frequently show contradictory results, favoring one or the other modality, depending on the study [1]. In large meta-analysis projects, the results even each other out, showing no significant difference in student learning between OL and F2F modalities [1, 2]. Interestingly, a recent national survey results showed that among faculty who taught online, 61% agree that outcomes in online courses can be at least equivalent to the ones achieved F2F, compared to only 14% of faculty who have not taught online [3].
At HWC, with thousands of students taking our online courses every semester (~5,200 in the current semester alone) and many instructors teaching across different modalities, the purpose of OL assessment is not to compare OL and F2F modalities, but to assess student learning outcome attainment in online courses. To this end, the HWC Assessment Committee (HWCAC) has a set of well-established assessment practices in General Education (Gen Ed) courses, and these practices include not only students taking face-to-face courses but online and hybrid as well. Thus, the online student population has been already included in our Gen Ed assessment for a number of years. In the Fall of 2016, Jen Asimow served as the first HWCAC Online Assessment coordinator. Her first project entailed an attitudinal survey where students taking online classes reflected and provided perceptions of their learning online in comparison to their perceptions of their learning in face-to-face courses [4]. The survey produced a number of interesting findings and revealed an overall positive student attitude towards learning online at HWC. The survey also issued a set of

recommendations to various HWC stakeholders [4].

Following this initial experience, we've began to look more closely at learning units where students reported statistically stronger perceptions of their online learning, specifically, Foreign Languages, with an idea that we can understand some approaches that can be included in other online classes. Unfortunately, two separate attempts, one in the Fall of 2018 [5], and another one in the Spring of 2019, yielded a low number of responses (12 and 13, correspondingly). Although these numbers represented about 10% of potential online respondents, they were too low to draw any meaningful statistically significant conclusions. At that point, we decided that most external attempts at dissecting the large online student population into smaller groups are likely to encounter similar issues and should be left under the purview of unit-level assessment efforts within departments.

Current State

The HWCAC and Office of Instruction are in the process of discussing the need for a new, all-encompassing approach in the areas of student learning, assessment, and professional development regardless of the course delivery mode. Below is a brief review of some key factors that should be considered in this process:
Steady Rise in OL enrollment. According to the latest report, student enrollment at HWC dropped by about 15.8% compared to the last year, while the enrollment in our online courses increased by almost 10.8% [6]; thus, student interest in our online courses and programs is steadily increasing in spite of the overall decline in enrollment. DoEd National Center for Education reports that the number and proportion of college and university students taking classes online grew in 2017, as overall post-secondary enrollments fell: a third of all students now take at least one online course [7]. The proportion of all students who were enrolled exclusively online grew to 15.4 percent (up from 14.7 percent in 2016), or about one in six students [7].

The Educational Renaissance is Digital. If we look at almost any progressive theme in modern education (global citizenship, personalization of learning, learning analytics, massively open online classes or MOOCs, just to name a few,), they all involve extensive use of technology. Furthermore, a traditional academic approach of experimenting, analyzing, reflecting and, only then, reporting, publishing and discussing is currently being disrupted by social media where the top thinkers seem to be sharing their thoughts in real time. Therefore, to ignore technological advances would be detrimental [8].

OL Teaching as Professional Development for Teaching in **any** *Modality.* The growth of online education "has served as the most important -- and least recognized -- method of faculty development ever devised" [8]. Adjusting to teaching online has challenged the traditional pedagogical approaches and demanded new ones; in turn, bringing new approaches back to the face-to-face classroom in a way that wouldn't be possible with traditional professional development of workshops and training sessions. According to the *Inside Higher Ed*'s 2019 Survey of Faculty Attitudes on Technology [3, 10], three-quarters of 900 instructors who have taught online believe it made them better teachers in several key ways:

- Almost four in ten instructors (39%) fully support the increased use of educational technologies
- 77% say the online teaching experience has helped them develop pedagogical skills and practices that have improved their teaching, and when those instructors were asked how their online experience has most improved their teaching skills:
- 75 % said they think more critically about ways to engage students with content
    - 65% were making better use of multimedia content
    - 63% were more likely to experiment and make changes to try to improve the learning experience
    - 61% were making better use of their institution's learning management system

    - 58% were aligning content and assessments more closely with course learning objectives

- More than two-thirds of instructors who had converted a F2F course to an OL or hybrid class said that their time spent lecturing declined (65%) and that they incorporated more active learning techniques into the new course (69%).

Conclusion

Perhaps the time has come to stop classifying our courses (e.g., face-to-face, online, and hybrid), and to stop separating our administrative units based on this classification, and, instead, to focus on student learning in the modern world of technological advances and busy professional and personal schedules. It is time to embrace all the benefits and learning opportunities that each modality has to offer and to use them to inform and improve each other rather than to compare and contrast. Shaping a new approach would require reflection and communication from all members of our HWC community.

References

1. Jahng, N., Krug D., & Zhang, Z (2007). Student Achievement in Online Distance Education Compared to Face-To-Face Education. *European Journal of Open, Distance and E-Learning*. Retrieved on March 24, 2019 from http://www.eurodl.org/materials/contrib/2007/Jahng_Krug_Zhang.htm

2. Sitzmann, T., Kraiger, K., Stewart, D., & Wisher, R. (2006). The Comparative Effectiveness of Web-Based and Classroom Instruction: A Meta-Analysis. *Personnel Psychology, 59*(3), 623-664. Retrieved on March 24, 2019 from http://dx.doi.org/10.1111/j.1744-6570.2006.00049.x

3. Inside Higher Ed. 2019 Survey of Faculty Attitudes on Technology. Retrieved on November 6, 2019 from https://www.insidehighered.com/booklet/2019-survey-faculty-attitudes-technology

4. Asimov, J. (2016). A Study of Students' Perceived Learning in Online Courses. Harold Washington College. Retrieved on November 6, 2019 from https://www.ccc.edu/colleges/washington/departments/Documents/hwcac/online/hwcac-online-assessment-2017-report-student-perceptions.pdf

5. Lapik, Y. (2019). What Can We Learn About Learning from Our World Languages Online Courses? (Sequel). Assessment Times HWCAC newsletter. Spring 2019, pp. 5-6. Retrieved on November 6, 2019 from https://www.ccc.edu/colleges/washington/departments/Documents/hwcac/newsletter/hwcac-newsletter-2019-04.pdf

6. ICCB: Fall 2019 Opening Community College Enrollment Survey Results. Retrieved on November 6, 2019 from https://www.iccb.org/iccb/wp-content/pdfs/reports/Fall_2019_Opening_Enrollment.pdf

7. Education Department, National Center for Education Statistics: Enrollment and Employees in Postsecondary Institutions, Fall 2017; and Financial Statistics and Academic Libraries, Fiscal Year 2017. Retrieved on November 6, 2019 from https://nces.ed.gov/pubs2019/2019021REV.pdf

8. Maloney, E.J. & Kim, J. (2019). Digital Learning, Scholarship and Social Media: Is participation mandatory? The Chronicle of Higher Education Almanac. Retrieved on November 6, 2019 from https://www.insidehighered.com/digital-learning/blogs/technology-and-learning/digital-learning-scholarship-and-social-media

9. Maloney, E.J. & Kim, J. (2019). The Golden Age of Teaching and Learning Hypothesis: The scholarship of learning innovation. The Chronicle of Higher Education Almanac. Retrieved on November 6, 2019 from https://www.insidehighered.com/digital-learning/blogs/technology-and-learning/golden-age-teaching-and-learning-hypothesis

10. Lederman, D. (2019). Professors' Slow, Steady Acceptance of Online Learning: A Survey. The Chronicle of Higher Education Almanac. Retrieved on November 6, 2019 from https://www.insidehighered.com/news/survey/faculty-support-online-learning-builds-slowly-steadily-not-enthusiastically?utm_source=Inside+Higher+Ed&utm_campaign=2945ba851e-DNU_2019_COPY_01&utm_medium=email&utm_term=0_1fcbc04421-2945ba851e-235169173&mc_cid=2945ba851e&mc_eid=1e4c9fd5cb

Unit assessment is like personalized latte art...yet less frivolous and more permanent
By Jeff Swigart

There's something wonderful about that tiny, artisanal coffee shop only a few people know about. It makes that perfect cup tailored just for you, and the barista knows you so well that she can create your face in the latte foam. You might never get that kind of service from a big chain coffee shop.

There's also something wonderful about the fine-tuned, homegrown, artisanal *unit assessment* being done at HWC. Our eleven unit assessment liaisons each work with their departments to assess student learning in various ways. The resulting projects create spaces for colleagues to work together to develop projects tailored to the department's current assessment needs.

Here are just a few of the improvements resulting from unit assessment over the last few years:

- Improving rubrics in 2D and 3D design courses.
- Identifying common misconceptions regarding DNA concepts in bio courses.
- Strengthening the program-level assessment of the business program.
- Enhancing students' understanding of the concepts of audience and purpose in their writing.
- Fine-tuning the process for music performance juries.
- Balancing the library's dual roles in academics and student support.
- Developing better strategies for learning about polynomial equations in college algebra classes.
- Producing active learning exercises for stoichiometry and kinetic energy lessons in physical science courses.

- Aligning program, course, and modular outcomes in the physical sciences program.
- Infusing civic engagement into the mission statement and throughout various courses of the Social and Applied Sciences department.
- Using open source computer software to analyze the pronunciations of students in early French classes.

These projects are as beautiful as latte art yet are strengthening the culture of student learning at our college for generations to come. In fact, many of the projects build on the work of previous liaisons, and we hope to see continued fine-tuning years from now and beyond. Each unit liaison has written a more detailed article below. We hope you will read; but more importantly, we hope you will participate with your department on these projects.

Art & Architecture: Assessing Art 145, Three-Dimensional (3D) Design
By Paul Wandless

Foundation courses for the AFA in Studio Art Degree

Art 145 three-dimensional (3D) and Art 144 two-dimensional (2D) are Foundation courses, required to take within the AFA Studio Art Degree. These two courses prepare students to be successful in the studio art elective courses that are taken later in the degree pathway.

These courses aren't discipline-specific. They aren't introductions to sculpture, ceramics, drawing, photography or printmaking. The Foundation classes focus on the concepts and application of the principles and elements of art that prepare them for those studios. This is done through being exposed to a wide variety of materials, tools, techniques and processes that will benefit them and prepare them to be successful in studio courses.

Art 144 2D Design is already actively assessed. So now it's time to start assessing its companion class, Art 145 3D Design. The courses together form a cohort because, optimally, they should both be taken together during a student's first semester. But in practice, students typically take them separately during their first 3 semesters in a manner that best fits their other scheduling interests. It doesn't matter the order in which one takes them, and both are open enrollment.

What to assess?

3D Design has several concepts among the principles and elements of design to pursue for assessment purposes. There are many tools, materials and fabrication techniques available to assess as well. Core concepts in 3D include; plane, form, line, spatial relationships, surface, color and kinetics. Fabrication techniques include; assemblage, modeling, mold-making, cold casting, relief and carving. Use of general hand tools and small handheld power tools are learned to work with the wide variety of materials and mediums covered in the course. Color, texture and sealing are among options introduced to address surface finish. Three dimensional lexicon, art history, contemporary practices and aesthetics are part of this course to meet critical thinking outcomes.

As you see, 3D Design is anchored in the ability to use tools and fabrication techniques for the successful manipulation of materials with proper application of the principles and elements of design. Fabrication techniques and associated tools are introduced and reinforced with the expectation that students will be proficient with them by the end of the semester.

How to accurately measure, cut, assemble and manipulate a given material with the proper tools and techniques are hands-on skills and concepts reflected in student learning outcomes that can be assessed and measured. These would be skill based activities which fall under the technical program and course level outcomes.

Program Learning Outcomes - Technical

- Demonstrate competence in the application of a broad range of technical skills for the fine arts disciplines with appropriate tools, materials and mediums.

- Construct projects that demonstrate learned skills in the manipulation of materials used in their respective discipline

Course Student Learning Outcome - Technical

- Effectively and appropriately use the tools, supplies and materials necessary to create three-dimensional work.

- Demonstrate an understanding and knowledge of how to appropriately, effectively and safely use tools, adhesives, binders and instruments of three-dimensional design.

How to learn and apply the terminology, concepts, ideas and aesthetics of three dimensional art are also outcomes that can be assessed and measured. These would be cognitive based activities which fall under the critical thinking program and course level outcomes.

Program Learning Outcomes - Critical Thinking

• Apply a vocabulary that demonstrates an understanding of the visual elements, principles of design and techniques and materials appropriate to their respective discipline.

Course Student Learning Outcome - Critical Thinking

• Demonstrate an understanding and knowledge of the elements and principles of three-dimensional design through assignments, papers, quizzes and tests.

• Demonstrate an understanding and comfort using the 3D lexicon to describe and write about any three-dimensional works of art objectively and insightfully through writing assignments, visual journal and class discussions.

Assessment Tool and Rubric

The pilot assessment tool is in two parts so it can assess both technical and critical thinking outcomes.

Part 1 (technical) will be a hands-on assessment requiring students to make a platonic solid. They can choose between a cube or tetrahedron. The tool will measure and score the ability to precisely measure and accurately cut bristol board to fabricate a platonic solid. The tool will have the parameters for measuring, cutting and folding of the two platonic solids. Students will be supplied with bristol board, rulers and Exacto knives to keep these variables consistent for everyone.

Part 2 (critical thinking) will be a combination of T/F, multiple choice and matching questions. The assessment questions will address core concepts, ideas and terminology covered through the course regarding use and application of three dimensional elements and principles. Matching questions will be for general vocabulary words. T/F will be used to assess learning of straightforward concepts and ideas covered. Multiple choice will have images and illustrations where students need to visually recognize and identify specific applications of terms and concepts.
Sample multiple choice question: What two kinds of form are represented in this sculpture?

A) Organic

B) Geometric

C) Rectilinear

D) Curvilinear

The rubric will score the degree in which the parameters were met for each skill in the hands-on task of part 1. Craftsmanship and level of difficulty will also be scored in relation to execution of the skills. The tetrahedron has a higher level of difficulty to make than the cube. A shared vocabulary list and core concepts resource handout will be created for students to review for part 2. These resources will be developed from information students have already been introduced to during the course. They will also serve to highlight for the students how the skills and information that they learned during the semester are connected to the stated outcomes in the course syllabus.

The pilot assessment will run towards the end of the semester in week 14 or 15 after the majority of tool, fabrication and core concept information has been covered and reinforced. One class period (2hr, 50min) will be used to complete the assessment.

Biology 121 Student Scientific Misconceptions: Before and After

By Yevgeniya Lapik

The HWC Assessment Committee (HWCAC) has an established six-step protocol for conducting assessment work. As a new assessment liaison (AL), I was lucky to inherit the funnest (in my opinion) part of the assessment protocol: steps 5 and 6, "Analyzing the results" and "Making recommendations and sharing those recommendations with various college stakeholders in order to support necessary change." Therefore, these data represent joint efforts of several Biology department members: Aigerim Bijelic (Bizhanova), a former Biology AL; and Bara Sarraj, Uletta Jackson, Ignatius Gomes, and myself – all volunteer members of the Biology department Assessment Committee; as well as all(!) Fall 2018 Bio 121 instructors who volunteered their courses for this assessment project: Michael Grez, Ignatius Gomes, Bindiya Kaushal, Bara Sarraj, and Gopalan Venugopal.

Project Background

In the Fall of 2017, 10 full-time and part-time Biology department faculty completed an extensive survey of over 150 introductory biology concepts to establish a consensus on what key information should be discussed in the Biology 121 course (major's biology) (Yev Lapik, Fall 2017 sabbatical project).

The Biology AL at the time, Aigerim Bijelic (Bizhanova), selected 16 key student learning outcomes (SLOs) reflective of 20 core concepts that received strong faculty support (based on the Fall 2017 faculty survey results) and designed a tool to assess student learning of these concepts. After a couple of pilot assessments and extensive discussions and feedback from the Biology department Assessment Committee, the original tool was revised to its current form and run in the Fall of 2018. It was administered twice: first, at the beginning of the semester, as a "pre-assessment," and then, at the end of the semester, as a "post-assessment." Although the pre-assessment survey was administered to over 250 students in all ten (!) sections of Biology 121, the number of students that completed the post-assessment was 155, with 150 students completing both, pre- and post-assessment; however, only 134 students had a record based on their student ID numbers and were therefore used in the pre- to post-assessment comparison.

The Spring 2019 was spent on statistical analysis of the data by the HWCAC Data Analyst, Fernando Miranda-Mendoza.

Key Findings

Part 1

Generally, most assessment tools are administered at the end of the course to assess student learning regardless of where students were at the beginning of the semester. Without a specific reference point, e.g. a national survey data or a long history of administering the same assessment tool at the unit level, it is not entirely clear what level of student performance to expect (of course, ideally, it would be a 100%, or all students answering all questions correctly). From that perspective, the average Biology 121 student's performance at the end of the Fall 2018 semester was 61.58% with standard deviation of 17.95% (i.e. on average students answered 61.58% of the questions correctly), also see Table I below. Students completed the course with significant level of misconceptions in the following areas:

- Heritable and non-heritable DNA mutations
- DNA sequences and flow of genetic information in the cell
- Direct (not facilitated) transport of substances across plasma membrane
- Chromosome structure
- Energy flow and metabolism in plant and animal cells

Table I Pre- and Post- assessment results

Pre-assessment performance	Post-assessment performance	Learning Gain
50.56% (SD 14.80%)	61.58 (SD 17.95%)	0.77

Part 2

Considering that one of our assessment strategies was to understand the general extent of student learning in the course, we have matched student performance on pre- and post-assessment. Compared to post-assessment results described in part 1, the pre-assessment average student performance was 50.56% with standard deviation of 14.80%, which was noticeably lower than in post-assessment (see Table I). Further analysis indicated that the improvement of average student performance in the post-test was statistically significant, as compared to the pre-assessment (p-value = 4.27×10^{-5}).

Learning Gain indicates the importance of difference between the pre-test and post-test student performance. In this project, Learning Gain (*Cohen's d*), is calculated to be 0.77, and thus is considered "Large" (Cohen, 1988).

Therefore, in spite of the fact that students are not able to resolve a number of biological misconceptions during the Bio 121 course, they do learn.

Part 3

Another assessment strategy was to look at the specific biological misconceptions that students have when they enter the course and to determine whether they manage to resolve these misconceptions during the course.

To this end, we took a stringent approach and considered a specific incorrect answer choice that was selected by students at a rate of higher than 25% to be a misconception, since a multiple-choice question with four answer choices (A, B, C and D) offers a 25% probability of randomly selecting any answer choice (see Figure 1).

For the post-assessment, we decided to use a popular in statistics "5%" as a criterium for improvement in student learning; thus, if the selection of a misconception dropped by more than 5% in the post-assessment, we interpreted it as an improvement in student understanding of that concept.

Question	Misconceptions (%) Pretest	Question	Misconceptions (%) Posttest
Q14	58.08%	Q14	49.68%
Q15	45.00%	Q15	37.42%
Q8	41.15%	Q8	35.48%
Q12	40.38%	Q11	32.26%
Q2	38.46%	Q12	30.46%
Q11	37.69%	Q20	29.03%
Q10	33.08%	Q4	22.58%
Q20	29.62%	Q2	21.94%
Q1	24.23%	Q10	21.94%
Q3	23.08%	Q1	17.42%
Q16	21.15%	Q17	16.77%
Q17	21.15%	Q7	16.13%
Q6	20.38%	Q19	14.84%
Q13	19.23%	Q9	14.19%
Q4	18.46%	Q16	14.19%
Q9	18.46%	Q3	9.68%
Q19	16.92%	Q13	9.68%
Q7	15.38%	Q6	8.39%
Q5	10.77%	Q18	7.10%
Q18	6.15%	Q5	6.45%

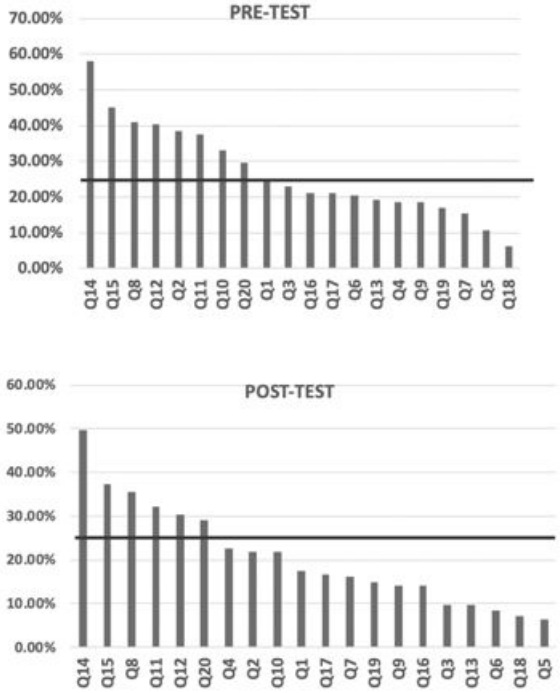


Figure 1. Alignment of assessment survey questions with frequency that students selected a misconception (from high to low); the thick horizontal grey lines represent a 25% "cutoff" for misconceptions in pre- and post- assessments.

Another important parameter was a decrease in student selection of specific misconceptions in the post-assessment. We decided to use a popular in statistics “5%” as a criterium for improvement in student learning; thus, if the selection of a misconception dropped by more than 5% in the post-assessment, we interpreted it as an improvement in student understanding of that concept. Figure 2 below shows a table form of the alignment of assessment survey questions with the frequency that students selected a misconception (from high to low). The thick short arrows pointing to the left mark the questions where student selection of misconceptions reduced with more than 5% frequency (thus, student learning improved, according to our criterion). Groups 1, 2, and 3 showed on the right side of Figure 2 summarize three prominent trends that manifested with regards to different concepts assessed by the tool.

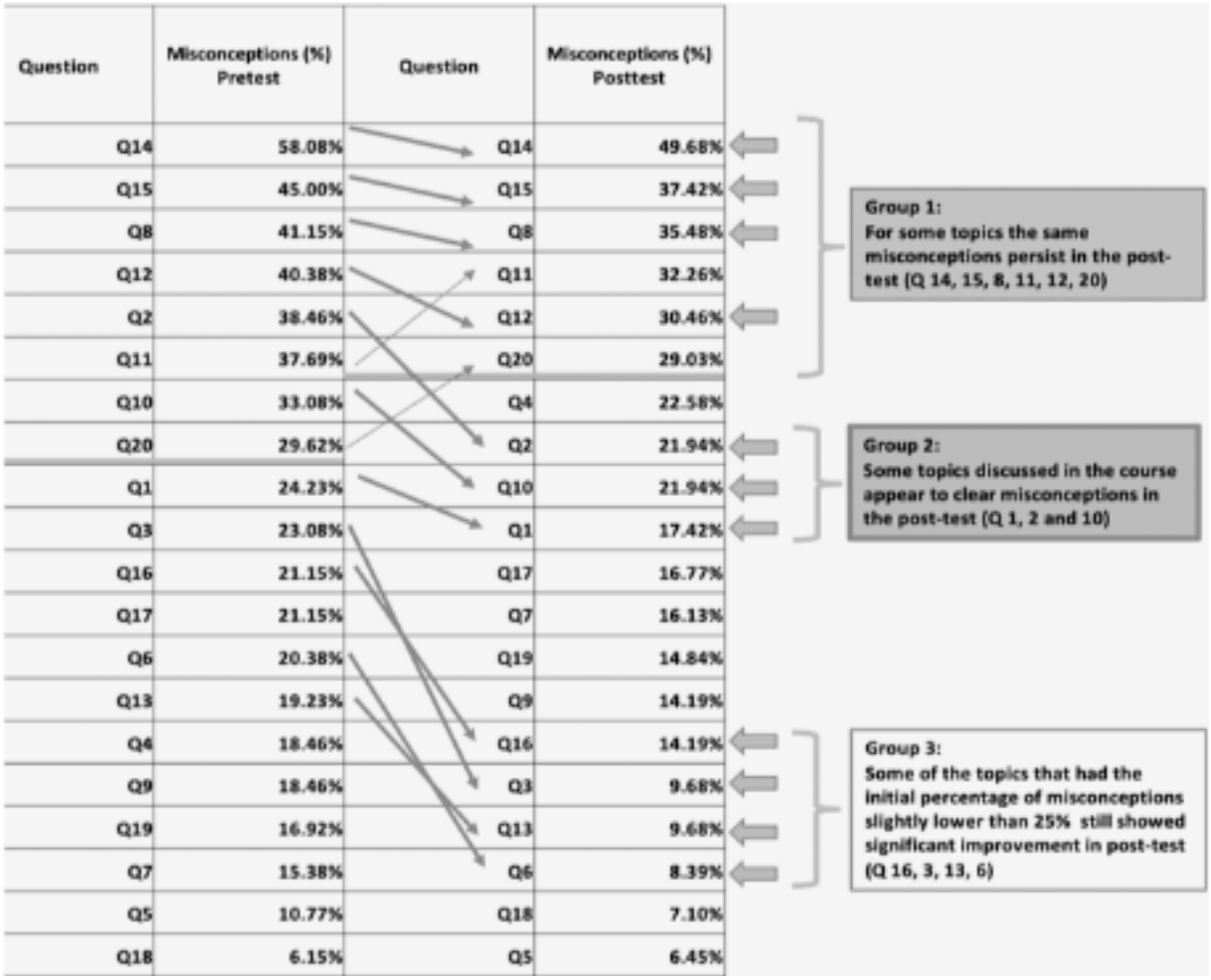


Figure 2. Alignment of assessment survey questions with the frequency that students selected a misconception (from high to low). Thick horizontal grey lines represent a 25% “cutoff” for misconceptions in pre- and post- assessments; the thin arrows pointing to the right connect the same questions in pre- and post-assessment; the thick short arrows pointing to the left mark the questions where student selection of misconceptions reduced with more than 5% frequency.

Group 1 includes the concepts that students continued to struggle with at the end of the course (as indicated by selection of misconceptions at a rate higher than 25%) summarized in the Table II below.

Table II. Misconceptions that persisted after the Bio 121course completion

Area of misconception	Misconception rate in pre-assessment	Misconception rate in post-assessment	The difference between pre- and post-assessment
Heritable and non-heritable DNA mutations	58.08%	49.68%	-8.4%
DNA sequences and flow of genetic information in the cell	45.00%	37.42%	-7.6%
Meaning of DNA sequence	29.62%	29.03%	-0.59%
Direct (not facilitated) transport of substances across plasma membrane	41.15%	35.48%	-5.67%
Chromosome structure	40.38%	30.46%	9.92%
Energy metabolism in plant and animal cells: cellular respiration & photosynthesis	37.69%	32.26%	5.43%

Group 2 includes the concepts that students were able to master during the course and the rate of misconception selection on the post-assessment dropped to below 25%, while the misconception selection per question dropped by more than 5%. These concepts are summarized in Table III below.

Table III. Misconceptions that were resolved during Bio 121 course

Area of misconception	Misconception rate in pre-assessment	Misconception rate in post-assessment	The difference between pre- and post-assessment
Scientific method	24.23%	17.42%	-6.81%
Basics of atomic structure	38.46%	21.94%	-16.52%
Energy metabolism: Cellular Respiration	33.08%	21.94%	-11.14%

Group 3 includes the concepts that had an initial misconception rate somewhat lower than 25% (thus, below our stringent 25% cut off) that students were able to master during the course and the rate of misconception on the post-assessment dropped from 19-25% to below 14%, while the misconception selection per each question dropped by higher than 5%. These concepts are shown in Table IV below.

Table IV. Mild misconceptions that were resolved during Bio 121 course

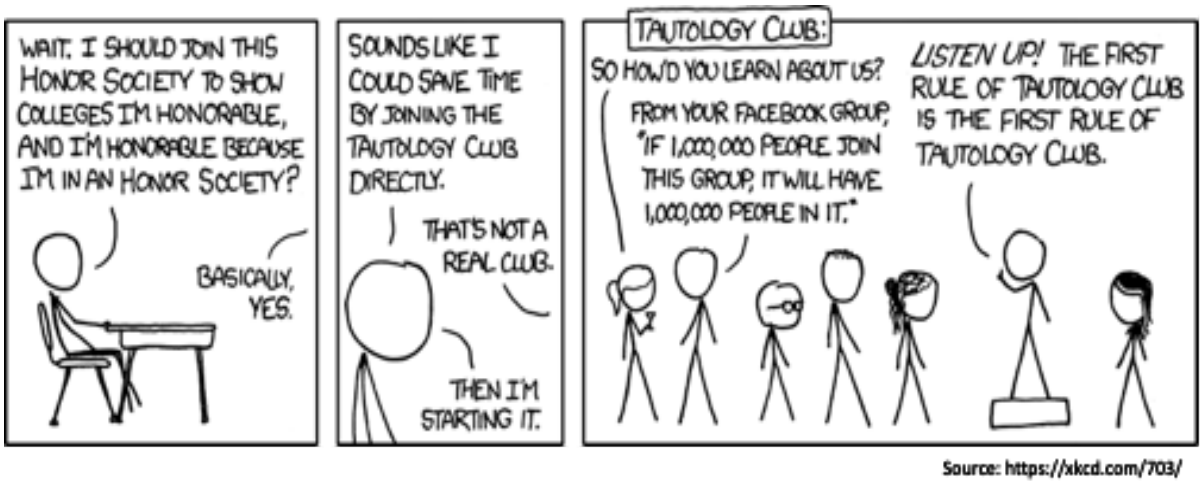
Area of misconception	Misconception rate in pre-assessment	Misconception rate in post-assessment	Difference between pre- and post-assessment
Flow of genetic information in the cell: transcription & translation	21.15%	14.19%	-6.96%
Biological molecules: lipids	23.08%	9.68%	-13.4%
Mistakes in cell division: cancer	19.23%	9.68%	-9.55%
Energy metabolism: energy source	20.38%	8.39%	-11.99%

Conclusion

This learning assessment project allowed us to tease out some of the most difficult concepts that students are exposed to in the BIO 121. Further, we obtained data for peer discussions at the department level with the goal of sharing best practices, seeking new ones, and discussing suitable pedagogical approaches to overcome the reported misconceptions. It is also rewarding to see how the Bio 121 course does help students in clearing many of their initial science-related misconception; thus, some best practices can be shared in that respect as well.

Reference

Cohen, J. (1988). Statistical Power Analysis for the Behavioral Sciences. New York: Routledge, https://doi.org/10.4324/978020377158



Business Department Assessment
By Bridgette Mahan

This Fall has been a whirlwind for the Business Department related to Assessment! Our work this term has consisted of both Unit level and Program level assessment related to the ICCB review of several of our Business programs and the completion and submission of the Business Department's Accreditation

Council for Business Schools and Programs (ACBSP) accreditation Quality Assurance Review report. Highlights of this work focused on the need to identify the areas in which student learning needs to be improved, evaluate the impact of modes of instruction and program curricula on the quality of instruction and student success and build

stakeholder reporting tools to help identify needed curricula and unit level changes.

This Fall, in our most recent ACBSP Quality Assurance Report, we documented our process for measuring and analyzing Student learning and performance. This review consisted of assessment of course success within our three existing accredited programs. The effort involved faculty across all disciplines, and to date, the Business Department has made progress in defining and capturing data that can provide insights about program and unit level effectiveness. Going forward, the Business Department will use these preliminary findings to further develop additional measures and use

captured data to further enhance content development for our accredited programs.

2017-2019 Results

The business department held regular bi-weekly meetings of business faculty and administration to revise and align program learning outcomes with input from business advisers, external AICPA competencies and current market trends. The assessment task force addressed business program outcomes and created course-specific assessment plans for the Business Department. As an outgrowth of this work, the department held discussions with tenured and non-tenured faculty in the spring and summer of 2018 about the results of the pilot work begun in 2017.

The assessment pilot consisted of end of term assessment exams in three baseline Business courses, Business 111 – Introduction to Business, Business 181 – Financial Accounting and Business 182 – Managerial Accounting. That input was used to tailor the timing and wording of the information sent to students via a Blackboard/Brightspace administered survey. This survey was targeted to assess student learning both early and later in their college tenure. There was department-wide agreement that there was value in trying to assess, at multiple points in a student's tenure at Harold Washington College, how they performed against a standard set of questions that covered a broad spectrum of business related topics that hopefully all students could successfully answer prior to matriculating from the college. The goal was to see if there was a demonstrable difference between "early tenure" and "late tenure" students and to see (depending on the response rate) if there is consistency in student learning outcome achievement across learning modalities.

In selecting which questions to include, we chose to de-emphasize specific accounting and business mathematics knowledge in order to expand inquiries about functional business areas and topics such as marketing and international business. The revised thirty question assessment has seven questions devoted to business mathematics, seven questions devoted to accounting, and sixteen questions allocated to introductory topics such as marketing, operations, and economics.

The assessment was administered a total of four times (twice in the Fall 2017 semester and twice in the Spring 2018 semester. In Fall 2017, the assessment was sent out to 623 students of which 65 responded, at a rate of 10.4%.

Unfortunately, the 2018 spring assessment which used the revised questions could not be effectively analyzed due to LMS related issues tied to City Colleges' transition from Blackboard to Brightspace in the summer of 2018. As part of the transition pilot phase, it was determined by the transition team that no assessment should be run through the LMS systems as there would be no consistency in delivery, which could impact the outcomes. In Spring 2019, the entire system went live with the new LMS, Brightspace. Our assessment needs have been discussed with the college lead technology administrator in order to ensure deployment of our Fall 2019 assessment plans, which will include the re-deployment of our course-specific assessment surveys and the piloting of a stakeholder survey targeted to current students, alumni and business industry stakeholders.

As part of our development of student and stakeholder focused information for our ACBSP Quality Assurance report, we completed the following table which included examples of student and stakeholder related Business Department assessment data:

TABLE 1: Student and Stakeholder Focused Results (Standard 3)				
Analysis of Results				
Performance Measure: What is your performance measure? What is your goal?	What is your measurement instrument or process?	Current Results: What are your current results?	Analysis of Results: What did you learn from your results?	Action Taken or Improvement Made: What did you improve or what is your next step?
Increase or maintain Business student satisfaction around instructional effectiveness	RNL Student Satisfaction Inventory (SSI) survey	SSI was first administer institutionally in Spring 2019, with bi-annual cadence. We have a baseline this year to measure our student satisfaction, which 5.34	The survey is a likert scale from 1-7, with 7 being high. Our students somewhat satisfy with our instructional effectiveness, with an average score of 5.34	There are 14 items that make up the instructional effectiveness scale in SSI. Overall our students are somewhat satisfy with our department, however, reviewing the individual items prove that we need to improve our interactions with our students. The next step is to socialize the finding at department meetings and develop ways to build a better rapport with our students.
Alumni Satisfaction with Business program				We have realized that we do not have a standardized process to administer a tool to and collect data from our alumni. We will begin to develop and pilot a process to gather this data on an annual cadence. In Spring 2020, we will administer a survey tool to our FY15-FY17 graduates or those who have graduated 3 years ago. The survey will have alumni satisfaction questions as well as an area where they can send an employer survey to their managers.
Employer/Industry Partners Satisfaction with Business Program				Pilot a tool to collect data and develop a standardized process. To date, we have collected qualitative information from our employer and industry business partners via business advisory meetings and ongoing meetings with apprenticeship partners. However, we are in the process of designing a standardized survey to capture related quantitative data on program(s) success.

English, Speech, Theater & Journalism: "Coordinating Our Distributed Learning Assessment Knowledge: The *Growing a Learning Assessment Culture* Book Project" By Kristin Bivens

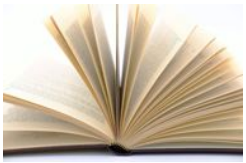
In *Cognition in the Wild,* Edwin Hutchins studied how United States Navy navigators coordinate their thinking--their cognition--across each other and the technologies that enable modern oceanic navigation. In his book, he also studied how Micronesian sailors navigated the seas, but without modern technology. To be certain, oceanic navigation is a complex task (just ask any sailor). Without modern technology, oceanic navigation is even more impressive, especially considering how sailors distribute their cognition--or the bits of information required to navigate the seas--among each other.

Similarly, if you have ever seen the Bravo channel's *Below Deck* reality show, you might have noticed how the captains of these superyachts rely on their deck crews (bosuns and deck hands) to leave docks, explore the open ocean, and return to docks. In other words, although the captain is at the top of the vessel's hierarchy and steers the ship, they rely on bits of information shared by their deck crews in order to navigate the oceans where these ships reside and journey.

Since cognition can be distributed among sailors and deck crews navigating the seas, so, too, can cognition and memory be distributed among the members of a community. In certain contexts, this is called institutional memory. As a simpler notion, the distributed cognition community members possess is expertise or experience. For example, the AC and our latest efforts to take the bits of knowledge distributed among past and current AC membership will be aligned and shared in the form of a book. In this way, although our book project is a monograph, it endeavors to draw out and upon the collective expertise experiences of the AC membership throughout the years.

Drawing from experiences spanning all disciplines in order to make transparent the work the AC has done and knowledge derived from that work from over the last nearly two decades, members of the AC recently submitted a book proposal to a publisher. The book project, tentatively titled *Growing a Culture of Learning Assessment*, draws upon the collective AC members' expertise and experiences and responds to the opening in learning assessment literature regarding encouraging faculty buy-in, promoting learning assessment as professional development, and augmenting shared governance through learning assessment.

Although it is clear that there have been certain captains over the years steering the AC, it is only through sharing our distributed knowledge that we are able to provide a useful tool or artifact--the book--to ideally enable other faculty elsewhere to do the same. In this way, we are hopeful for an encouraging response from the book publisher, so we can coordinate our distributed learning assessment knowledge and, through the book, enter into national and international discourse about learning assessment in a different way.



Humanities & Music: In Another Universe (Maybe) I Know How to Use Spreadsheets Excellently
By David Richardson

Recently, I've been spending a lot of time—for a philosophy teacher, anyway—with Excel spreadsheets, which has led to at least three realizations:

> 1) It would have been a good thing for me now if at some time in the past I had actually learned in a class or a job or through some accident of circumstance how to make good and efficient use of Excel (or something like it), which is—I guarantee you—a thought that has not ever crossed my mind (in this particular corner of the multiverse, anyway) at any point prior to the fall of 2019;
>
> 2) The name "Excel" is a pretty magnificent and ingenious little bit of branding—there are cells, there are variables, which makes me think of "x", and now and then there is a neat little visualization of the sort of progress that I connect with the idea of excellence, and it's all there right in that pithy, memorable little name!--genius; and
>
> 3) As good as it is for certain things and as much as I admire aspects of it and as useful as it would be to be much better at using it, I find it incredibly difficult to sit down and actually try to learn it and when I do I have the dangdest time remembering what I learned, which I find most aggravating. (Two years ago, I bought *Statistical Analysis with Excel for Dummies* by Joseph Schmuller and have only made it to page 171 (though I've made it there at least three times), which is pretty bad given that most of the book is pictures and diagrams and that I would absolutely fail any test that anyone gave me on the content in those first eight chapters that I've read more than once and still haven't mastered! Let's just say that I'm glad my primary work tasks do not mean being paid to learn, use, or teach things related to spreadsheets and Excel.)

But that last realization is a bit of a personal digression (alas, you are not in the world where I'm succinct), but there's no room for that sort of thing in a report about an objective discipline like "Assessment of Student Learning"; however, it is true, so I think I should keep it, and so I shall, just without dwelling on it for too long (and it's already been too long).

So let's get back to #2 and that bit about progress because it's not merely personal *and* it's a central theme of program assessment activities in the Humanities. More specifically, Program and Unit assessment in the Humanities Department has made big progress on five different projects this semester.

The Two With Pictures

First, assessments of students pursuing our AFA degrees in Music Education and Music Performance have continued to provide clear evidence of students' ongoing success in demonstrating the learning outcomes of a crucial four-course sequence of private lesson instruction, especially with respect to students' performance of musical works in a juried event [e.g., in Spring 2019, 85% of Music 181 students (n=22) were rated as having demonstrated the intended outcome for that course level by both observers and that is also true for 86% of Music 182 students (n=14)]. Furthermore, when comparing the percentages of students rated as "Proficient" (i.e., transfer-ready) in various categories such as Professionalism, Musicality, and Technique, we see clear evidence of student growth and progress (see Figure 1).

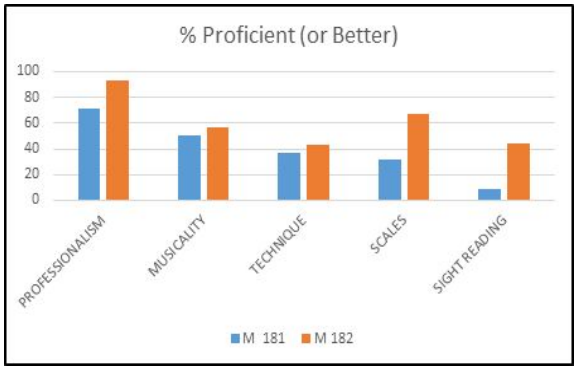


Figure H1: Comparison of Percentage of Students Rated Proficient in Music 181 and 182

As you can see from Figure H1, the area where students were least proficient after their first semester of private instruction was in their ability to play sight-read music; only 9.1% of Music 181 students were rated as proficient sight-readers, leaping to 44.4% of

Music 182 students. That progress is exciting to see, especially in light of some changes in curricular emphasis that have been a serendipitous result of our assessment efforts.

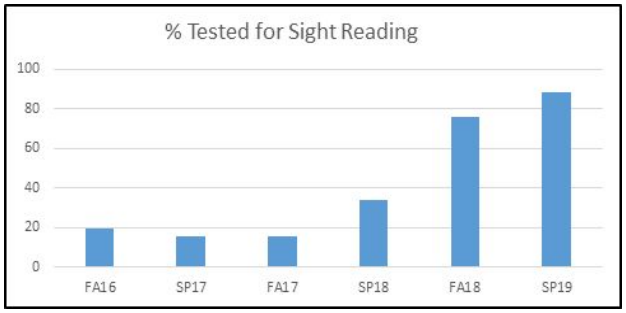


Figure H2: Percentage of Students Tested for Sight Reading by Semester

In Fall 2017, we realized that only 16% of our students were being tested in their juries for their ability to sight-read music, and had been at about the same level in the previous year. Once our faculty saw the data, our faculty re-emphasized this aspect of the course with their own students and with our department adjuncts. The following semester, the percentage of students tested on sight-reading jumped to 34%, and the next semester to 76%. Last May (2019), 88% of our students (n=42) were tested in their juries for their ability to sight-read (and play) music (see Fig. H2), which is much closer to where our music faculty want that number to be.

Another area of progress for our department, and our music program in particular, has come with a pilot project for sharing the rating information from the juries with students. We have created a "Student Dashboard" with the aim of having instructors share it with students sometime during their first semester of private instruction in order to see the full arc of the four-course sequence in terms of outcomes, criteria, and ratings, and then update it as they move through the courses, color-coding the ratings so they can see, at a glance, how they were rated in previous juries for easy comparison to their self-ratings and for goal-making purposes. For an example, check out Figure H3 below:

This semester we will collect feedback from faculty, instructors, and students alike and look for ways we might measure changes that result from our efforts to inform students about their progress.

The Other Three

Two other ongoing assessment projects related to Basic Certificates in Music Business and Music Technology are on the verge of readiness, as of this writing, for their next big step—developing a measure of student learning and piloting it.

Finally, the fifth exciting project in Humanities Program and Unit assessment is an ongoing pilot of a Performance Prognosis survey that I ripped off/adapted from a survey created by Saundra McGuire for her Chemistry class at LSU, published as an appendix in Kathleen Gabriel's *Teaching Unprepared Students: Strategies for Promoting Success and Retention in Higher Education.**[i]*** I have kept most of her original questions such as, "I keep my phone, social media notifications, and other distractions OFF or out of reach/view when I am in class AND when I am studying" and "I have made diagrams or some sort of graphic organizer (e.g., concept map, flowchart) of the concepts and their relationships to each other," with a few edits to make the questions a better fit for my Logic class, as well as expanding the question list from 13 to 21 by including statements like, "I understand that responsibility for learning (and my interest in the course) lies primarily with me—that I must do the learning, and find my own interests or, when I am uninterested, be patient and understand that as I learn more, I will get more interested (i.e., I understand the 'learner's paradox')" and "I have responded to difficulties I have and errors that I make with patience for myself and an understanding that mistakes are necessary to learning; I ask, *'What do I understand so far?'* instead of wondering why I don't 'get it' (and, whenever possible), write out my understanding."

I have surveyed students in two of my classes twice each now prior to their exams as a pilot to see, first, if there was some correlation between students answering "Yes" to more of the questions and higher scores on the exams and second whether one or more of the questions related more strongly than others with higher (or lower) scores. As I expected, there was a weak correlation (assuming that I didn't screw up the Excel formula) between student responses and scores on their first exams (r = .1415)—I guessed this would be the case because in the opening weeks of the course we are covering general topics related

to argument that some students have prior knowledge of, meaning things other than their study behaviors may have significant impact on their exam score, and also, students often don't have a realistic sense of what it means to "prepare adequately for class" in the first few weeks and so may answer more positively than they should and more positively than they eventually do when they get the feedback from their first exam.

Interestingly, the correlation for student responses and scores rose for the second exam (r = .3805), showing a moderately positive correlation between student positive responses and scores. I have not yet learned how to do the tests that will help me figure out which questions relate best to high scores, but I'm looking forward (sort of) to spending some time with my *Statistical Analysis with Excel for Dummies* book by Joseph Schmuller on some cold and dreary afternoon in January after I have all of the surveys and all of the exam scores from my classes, and seeing if I can figure out how to find something interesting.

And with a little luck, I might even be able to remember how to do it! With a lot of luck, I might even do it correctly! And if it turns out that I'm unlucky, incapable, or both, I'll sign one of my kids up for an Excel workshop at the library, and I'll tell them how grateful they'll be to me someday because I made them learn about spreadsheets when they were young, and I'll tell them that they should believe me because I read philosophy all the time and so have become old and wise. And if they don't buy that, I'll just bribe them because that usually works (at least with the younger one). Granted, paying off my children may not be the best way to help them *excel* in life, it is a reliably excellent way for me to have some free time for thinking about all the things I might have learned and all the lives I might have led. Who knows? I might even be inspired to make a spreadsheet about them.

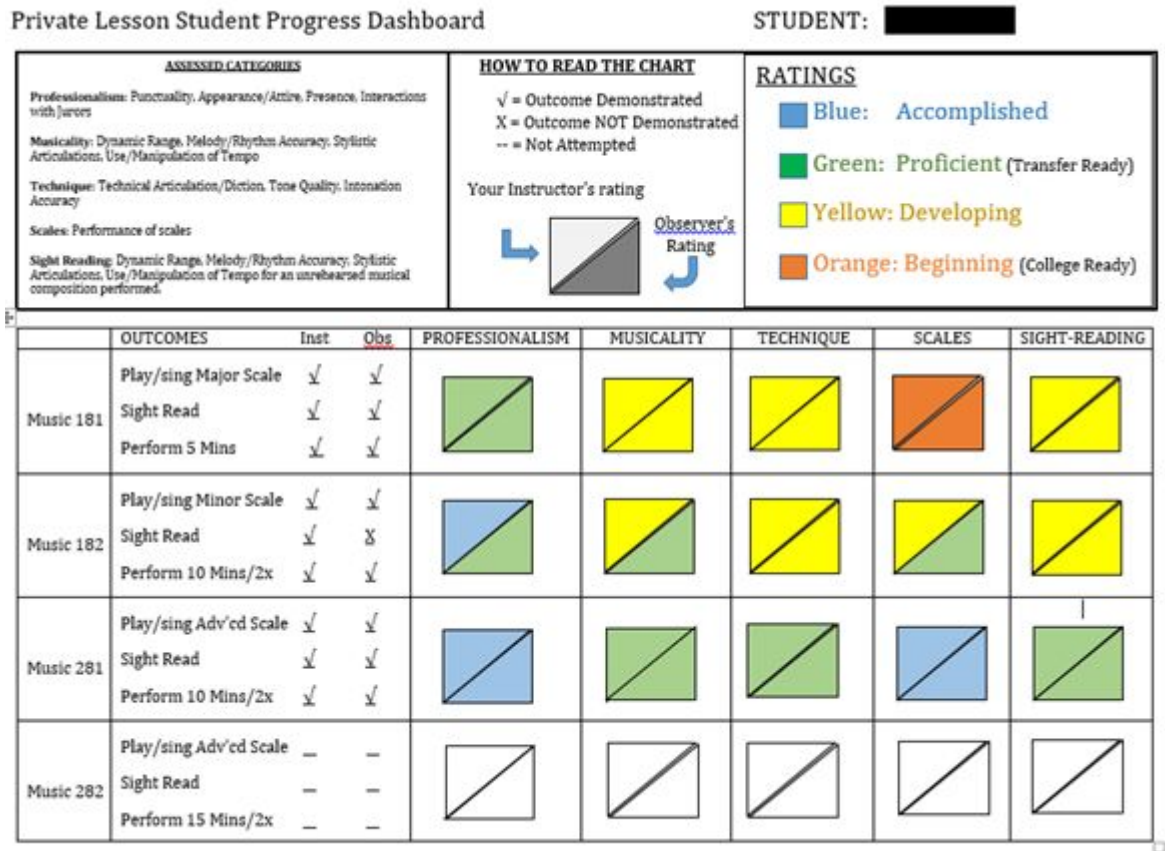


Figure H3: Image of Private Lesson Student Progress Dashboard

Library: 2020 Unit Assessment Plans
By Todd Heldt

HWC library's assessment activities traditionally have focused on direct assessments of outcome-related skills. Though this seemed like the logical direction for an academic department, our data have generally corroborated what previous librarians had found about one-shot assessments: either measures found no change or only a slight change in library skills (See Hsieh and Holden (2010) and Portmann and Roush (2004) in particular). Furthermore, administering assessments was problematic for a variety of reasons, including time constraints and/or incompatibility with primary instructor wishes. Last year's measurements of keyword and Boolean operator proficiency were congruent with these previous observations.

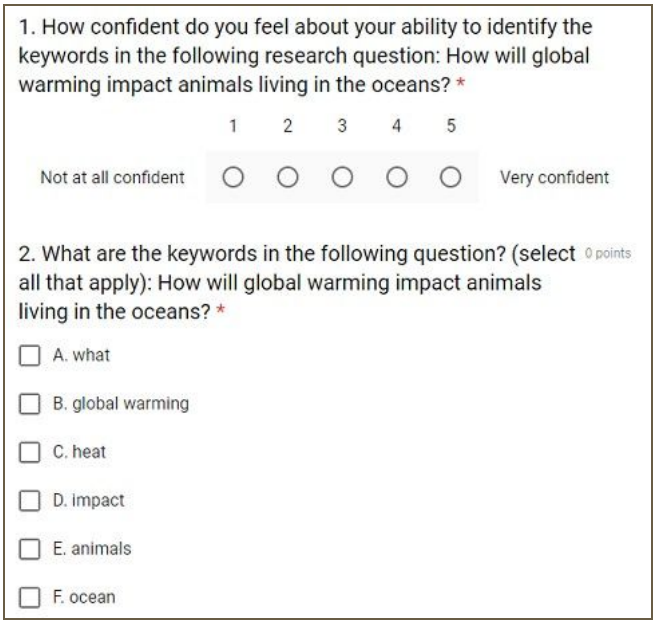
One might question the value of such an academic approach to assessment, and indeed whether or not it uncovers everything librarians needs to know about unit-level learning. This is especially relevant considering the dual roles that the library occupies in academe, being both officially an academic department and also often a de facto student support service. Therefore, it might be tempting to avoid skills-based assessments and move toward more affective domain interrogations. For instance, instead of gathering more evidence (ultimately) about the challenges of assessing information literacy skills in one-shots, it might be reassuring to learn instead that students feel more confident about their skills after a library presentation. However comforting it may be to learn that a student feels comfortable approaching a librarian for help, it remains the goal of information literacy instruction to teach them lifelong research skills, and that means teaching them how to use Boolean operators. Thus, it seems important to keep teaching those skills and looking for ways to measure them.

In addition to those questions about learning and assessment needs, others in the field suggest alternative approaches. For instance, R. Wang's *Assessment for One-Shot Library Instruction: A Conceptual Approach* (2016) recommends teaching and assessing "research readiness skills," which may be briefly summarized as

> understanding their assignment
>
> having clarity about their topic
>
> recognizing where to look for sources
>
> willingness to ask information professionals for help
>
> planning their research
>
> and learning the mechanics of searching (621).

Fortunately, departmental buy-in to assessment remains strong, and the robust discussion has been interesting. Because several colleagues argue convincingly for keeping skills questions, because we are interested in learning more about research readiness, and because we are also interested in how students respond to our efforts to support their learning, the next assessment tool will include skills-based, affective domain, and research readiness questions. In order to accommodate additional questions, the tool will include fewer skills questions. Likewise, it is predicted that the affective domain and indirect questions will take less time for students to answer.

> Confidence-level questions are paired with their corresponding skills questions:



Research readiness questions attempt to gauge to what extent the library session prepared students to complete the various stages of a research project. This indirect component of the measure seeks to determine how effective one-shots are at making students aware of and prepared for the different steps of the research process.

The library will begin using this tool in the Spring of 2020.

10. How much has the library session helped you...

A. understand your research assignment? *

	1	2	3	4	5	
Not at all	○	○	○	○	○	A lot

B. find a clear, focused topic? *

	1	2	3	4	5	
Not at all	○	○	○	○	○	A lot

C. find a systematic process for completing your research assignment? *

	1	2	3	4	5	
Not at all	○	○	○	○	○	A lot

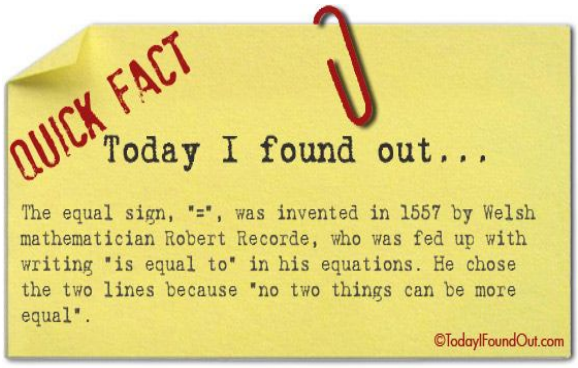
D. feel confident about approaching a librarian for assistance with your research? *

	1	2	3	4	5	
Not at all	○	○	○	○	○	A lot

Mathematics: Eradicating Math Inequality!
By Camelia Salajean

Inequality... As in solving for that famous "x" when an algebraic expression is not equal to another algebraic expression. This seems to give our students more trouble than solving "equations", where the algebraic expressions are equal. This is what we discovered in designing and analyzing the pilot assessment for the Math 140 course.

Math 140 – College Algebra is an essential prerequisite for college level mathematics-dependent courses such as business, accounting, science and engineering. The Mathematics Department has been consistently interested in finding out more about students learning in this course in order to help them succeed not only in Math 140 but also in the subsequent courses such as Calculus. Moreover, the number of Math 140 sections offered has been increased over the past two semesters compared to all the other mathematics courses. In conjunction with the sections at HWC, we offer Math 140 in collaboration with DePaul University and CPS High Schools.



At the beginning of the Spring 2019 semester, nine out of the thirteen full time faculty members of the Mathematics Department started working collaboratively on the Assessing Essential Skills in Math 140 Project. First, we revised the SLOs for this course. After a few discussions, we selected three SLOs that we were interested in investigating. We subsequently voted for one. Since we ended up with a close tie between two, we decided to assess both under the title "Solving polynomial equations and inequalities." This is a particularly important topic that students need to master prior to starting Calculus.

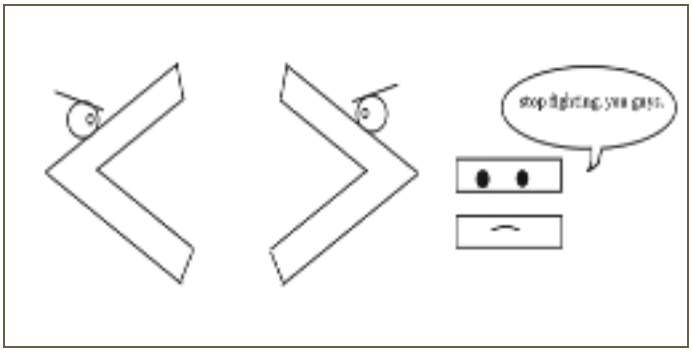
After we completed a research survey of existing assessment tools and processes, we decided to start from scratch and create our own innovative tool. We wanted to create a short online survey, containing questions well-aligned with the SLO assessed. Initially we discussed the errors that students typically made while solving exercises addressing this SLO (not only in Math 140 but in Calculus too). We were all familiar with common mistakes

such as incorrect simplification or incorrect use of Zero Factor Property, but we discovered new blunders students make for which we couldn't figure out the origin. We made a decision to address all these common mistakes in our assessment. Easier said than done! We knew we couldn't ask students to show work or to graph for the math exercises. We had to be inventive, so we were.

In Spring 2019, the math faculty designed a short online survey on Google Forms containing four exercises: solve a quadratic equation and a quadratic inequality algebraically, as well as solve an equation and an inequality graphically. For the first two questions, we provided different ways of solving the exercises, saved as images and presented as different options, and we asked students to select only the correct procedure. For the last two visual questions, a graph of two functions was given, and students were supposed to identify the correct solution out of multiple answers by getting information from the graph. We included in the answers the common mistakes students make when solving these types of exercises, and obviously the correct procedure or answer.

Since we decided to work on a Math 140 pilot assessment, we invited all faculty members teaching Math 140, including our adjunct colleagues, to be part of this project. All were introduced to the project via e-mail and in one-on-one discussion to emphasize the importance of their participation and encourage everyone to volunteer and urge their students to take the assessment survey. The pilot assessment was administered during the last three weeks of the Spring 2019 semester. We collected about 100 responses in this short period of time.

This semester, we were eager to receive the pilot analysis report from the AC Research Analyst. Students did better than we expected for solving polynomial equations algebraically and graphically; however, we found that they struggled with solving polynomial inequalities. This was not a surprise since this topic is challenging and also based on solving equations. We are currently revising the contents and formulations of the survey and continuing to refine it by integrating our findings into the final assessment tool.



Physical Science: Increasing Student Performance using Active Learning Activities in the Classroom
By Samar Ayesh

Previous assessments for our chemistry courses in the physical science department involved the examination of the results of the assessment that faculty have been using for several semesters. The reports involved results of both the examination of the pretest results given to General Chemistry II and Survey of Organic and Biochemistry, as well as the posttest results given to General Chemistry I course. Both have used the same assessment: The American Chemical Society test. This test assesses students' mastery of the concepts they learned in the General Chemistry I course.

Results showed that students are challenged when it comes to topics involving kinetic energy of a gas and its relationship to temperature. Another topic that was challenging is the description of the process involving a solid dissolving in water (in particular writing the equation for the process of dissolving glucose in water). Results also shows that students struggle with stoichiometry problems that are hard and more conceptual. Many students also were not able to determine bond angles for a molecule when given a Lewis dot structure.

The results from the pretest and posttests using the American Chemical Society (ACS) allowed us to understand these problems but

did not show us how to improve our students' understanding of such important concepts. The next step was to develop a short stoichiometry assessment that consisted of 3 questions that was given to CHEM 201 as a posttest. This assessment was used for 3-4 semesters, and the results of this assessment showed that students can solve easy stoichiometry questions; however, many students were challenged when it comes to more difficult and conceptual problems.

The results suggested that students had just memorized certain steps and that when they were working on a stoichiometry problem, they were used to using the molar mass, although they clearly did not understand WHY they should use it in some problems and not in others. And so the last step was to create a packet of more conceptual stoichiometry problems - problems that students could not just solve by rote memorization of a series of mathematical steps, but that would hopefully encourage them to THINK about the problem. This list was emailed out to the faculty so we can give students more opportunities to practice these more challenging, conceptual problems..

This semester I'm focusing on efforts to improve academic outcomes for our students. Although actively engaging in a chemistry course lecture may feel awkward or difficult at first, data has shown that students who actively engage with the material during lecture retain far more information. What are the best ways in which to help students learn and engage with the material?

Best practices in STEM education, such as cooperative and collaborative learning, have been proven as an effective pedagogy throughout the chemistry curriculum (1). Active learning in the classroom, with emphasis on higher-order thinking, will help students build the skills needed to succeed. It will provide a more engaging classroom experience that would eventually improve student outcomes. These activities are built upon a more student-centered learning environment, in which the instructor's goal during the activity is to assess progress and provide class instruction to all students as needed, and to pinpoint key areas that need further discussion

My project this semester is to develop new engaging active learning activities for faculty to integrate into the classroom, with the goal of improving the outcomes of the General Chemistry I course. General Chemistry I (CHEM 201) is a high impact course at Harold Washington College with a large enrollment of about 250 students per year and a generally low success rate. This course is of particular importance since it's the first course in the general chemistry sequence of courses. Students need to earn a grade of C or above in it to take General Chemistry II course (CHEM 203) or Survey of Organic and Biochemistry course (CHEM 212).

Chemistry is all about problem solving—and just like riding a bike, this skill needs practice, lots of practice! This is something that students can do on their own; however, having students solve problems collaboratively in a study group is even better.

These are the topics/activities I'm focusing on this semester:

1. Chemical nomenclature
2. Redox Reactions: Oxidation-Reduction Reactions
3. Limiting Reactant and Percent Yield
4. Writing and Balancing Chemical Equations
5. Calculations with Balanced Chemical Equations
6. Solution Stoichiometry: Titration and Gravimetric Analysis
7. Gas Laws and the Kinetic Molecular Theory

To make room for such collaborative activities, the content that's traditionally covered in lectures is assigned as preparatory material before class. For example, in my classroom students are asked to complete an online assignment through McGraw Hill Connect (LearnSmart) where they have to read the chapter and answer 25-30 questions before class. Then, in-class activities along with the traditional lecture will serve to engage students more actively with the materials they read before class.

These activities will be shared with other faculty teaching CHEM 201 in the spring of 2020. And then I plan to have the students take the ACS assessment exam and to compare the results of this posttest with the previous results in order to see whether these active learning activities seem to help improve students' performance or not.

1. https://www.pnas.org/content/111/23/8410.full

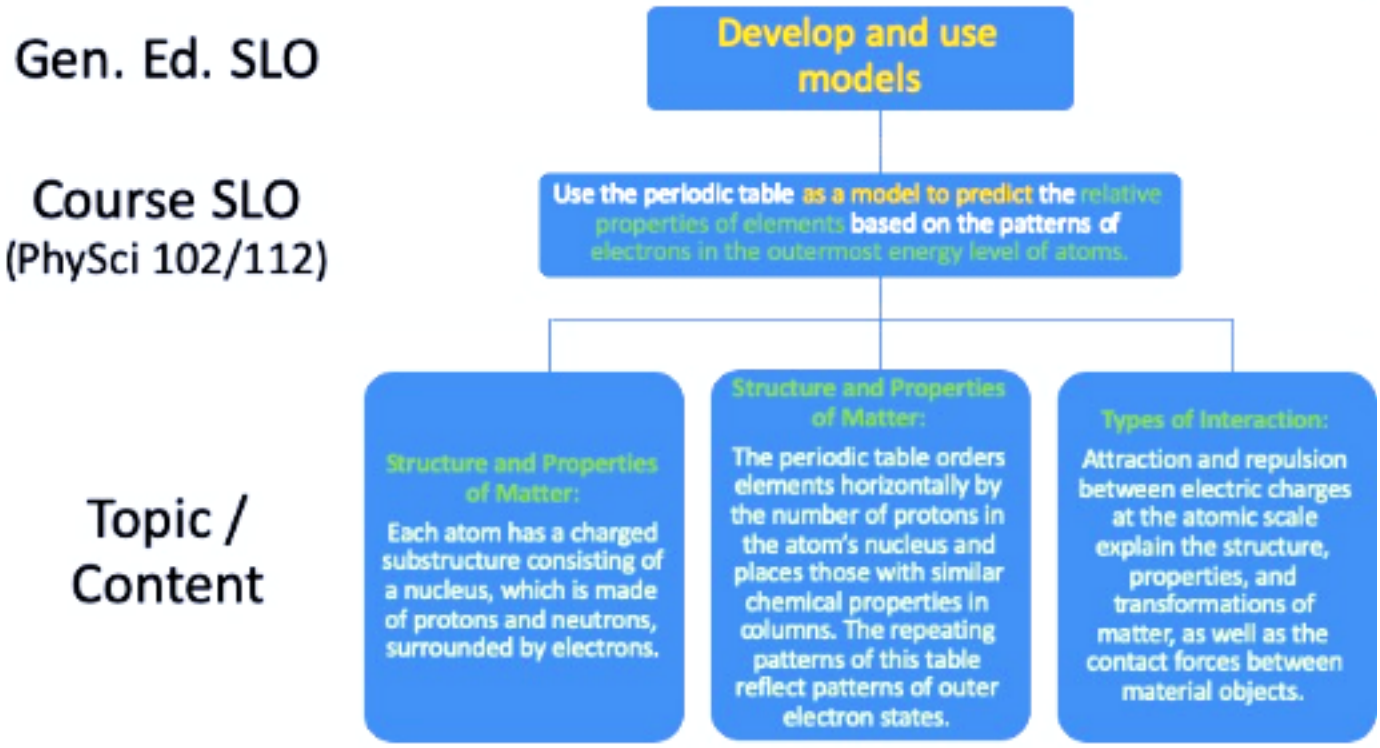
Physical Science Assessment
By Phil Vargas

In 2016 Harold Washington College Assessment Committee (HWCAC) assessed the general education outcomes (GEO) in the natural sciences. As with many of the general education assessments, the committee learned what students are learning, but also learned more about what the college is teaching. One of the largest takeaways occurred during the development of the assessment tool. It was decided early in the process that a concept inventory tool would be designed to allow specific statistical techniques, and to reduce the amount of time and effort required to score the assessment.

This immediately illuminated a discrepancy in the physical science curriculum. The concepts that are explicitly listed in the student learning outcomes (SLO) of the general education courses were specific to the scientific fields that these courses covered. In HWC's catalog, all of the non-major, physical science courses are survey courses. These can be divided into introductory courses such as geology or astronomy or topics courses that cover multiple fields such as a conceptual physics and chemistry course or an earth and space science course. In order to earn an A.A. or A.S. degree and meet the GEOs, students are only required to take one physical science course. Identifying the intersection of concepts that were taught in all of these courses and matching them to the general education SLOs proved to be a challenge.

While the committee was able to develop a tool that was general enough to measure learning, it became clear the further refinements of physical science assessment should focus on aligning the SLOs at the course level with GEO at the program level. The Next Generation Science Standards (NGSS) is poised to be a framework for achieving this goal. The NGSS was a multi-state, multi-agency project designed to create standards of learning in science and engineering courses for the K-12 grades. The main goal of this project was to try and synthesis all of the coursework being taught and to better prepare students to become engineers and scientists. The results of this project informed the SLOs referred to as performance expectations (PEs) of the common core curriculum.

Utilizing this developed framework, the GEOs for the natural sciences could be slightly refined to incorporate the Science and Engineering Practices outlined in the NGSS. Then the SLOs for individual courses can be updated to reflect the performance expectation of that discipline. The master syllabi format lends itself well to this process and is illustrated below with the hierarchical relationship. The language of the GEO of "Develop and use models" would be present in a course SLO for a particular discipline. The discipline specific concepts could then be in the content section of a unit within that course. Repeating this process for each of the GEOs to all of the courses' SLOs in the physical science would create an explicit mapping of where these outcomes are being taught and allow us to better measure them.



Social and Applied Sciences: Civic Engagement Assessment Project, Closing the Loop in Earnest
By Domenico Ferri

> *"Education either functions as an instrument which is used to facilitate integration of the younger generation into the logic of the present system and bring about conformity or it becomes the practice of freedom, the means by which students (sic) deal critically and creatively with reality and discover how to participate in the transformation of their world."*
>
> - Paulo Freire

With Freire's words echoing in my mind during the two years I have served as the Social and Applied Sciences (SAS) Assessment Committee liaison, the experience overall allowed for extended reflection on how our course offerings mobilize and inspire students to serve the greater good. It's also no coincidence that nearly twenty years of teaching have exposed me to countless students wondering how best to go about such a grandiose mission, often asking in response to passionate and sometimes exhausting descriptions of Chicago-style inequality, "How can we truly improve the state of the world around us?" Beyond recommending to them a doctrine of love and service, I am encouraged to learn through this project that my go-to advice is bolstered routinely by SAS courses, which most assuredly remain committed to broadening civic consciousness, social responsibility, and, in myriad ways, to providing blueprints for how to answer Friere's call to "participate in the transformation of their world."

To be sure, this project has confirmed what we've held all along: civic engagement is the overarching and unifying theme across all of our course offerings. Now as I embark upon my fourth and final semester as SAS liaison - though I may return with a new project down the line - I am determined to apply data gathered from recent surveys in an effort to continue fortifying student critical social consciousness *and* stimulate community engagement. This is to say that our greatest aspiration is for SAS students to emerge from

our courses better capable of positively shaping their own destinies against a backdrop of looming inequalities in housing, health care, economics, education and even the justice system, all of which they've had the opportunity to analyze extensively at HWC.

For the initial phase of the project, I researched the very concept of civic engagement (its dynamic meaning across historical contexts) and took inventory of *all* SAS course SLO's, underscoring those that relate to different forms of civic engagement, ranging from passive to active forms (or conceptual to applied knowledge). Out of hundreds of SAS course SLO's currently in use, I then synthesized five concise departmental student learning outcomes. They are as follows and have been named in previous reports:

1. Define and interpret civic engagement.
2. Evaluate popular depictions of identity in order to determine the prevalence of stereotypes and their impact.
3. Analyze how and the extent to which civic engagement/activism has led to institutional change.
4. Assess the quality of life within a community and devise strategies for improvement.
5. Implement solutions in order to support community members.

All told, these outcomes are logical extensions of our civic engagement-oriented SLOs with applications for all of our course offerings. With these five SLO's established and later refined with the advice of committee colleagues, I then ran a pilot survey devoted to measuring student learning as it relates to these aspects of civic engagement. The results of the pilot survey of 74 students were encouraging and reported in detail, but the survey and sample size both required expansion in order to reduce the margin of error, expand relevance, and increase confidence in our conclusions.

To that end, for semester two I spent time analyzing, expanding, and revising the pilot survey into a more comprehensive and thorough investigation of student learning and civic engagement. The new survey was distributed to a much larger sample size (233) and the survey results reinforced the notion that civic engagement is a prominent, unifying theme across all or most of our courses. If you don't have the time or inclination to pore over raw numbers, simply note those areas of strength gleaned from survey data of 233 students:

1. 99.6% of surveyed SAS students (232 out of 233) successfully recognized a valid definition of civic engagement.
2. 96.6% of surveyed SAS students (225 out of 233) declared "yes," indicating that their SAS courses revealed variability of resources and opportunities from one community to the next.
3. 95.1% of surveyed SAS students (222 out of 233) feel confident that they can describe civic engagement in their own words to family and friends.

While these areas of strength convincingly proclaim that SAS students are familiar with civic engagement as a concept, material inequality variability, and their own ability to define civic engagement, we also discerned from survey results that our courses are only slightly less effective when it comes to students devising their own strategies for community improvement and engaging their respective communities on the ground, so to speak. Data corroborates this claim as follows, where the numbers are somewhat lower :

1. 93.7% of surveyed SAS students (219 out of 233) noted that SAS courses have proposed methods for effecting change in a given community.
2. 91.0% of surveyed SAS students (212 out of 233) have been exposed in their SAS courses to various models of civic engagement.
3. 91.5% of surveyed SAS students (214 out of 233) declared that that their SAS courses have enabled them to improve the state of a community.

So, "closing the loop" at this juncture of the project simply means applying strategically what we have learned to updating department branding and strategic activity documentation and expansion. In order to do so, I have taken advantage of my own position

as department co-chair and recruited departmental support. Based on the full survey results and what they reveal as areas of strength and areas of growth, we have a sufficient basis upon which to advertise, itemize, and expand the SAS commitment to civic engagement in three distinct phases. While the first phase is my own initiative to carry out, the second and third phases require the input of colleagues so that we can establish a list of learning opportunities that all of our instructors may use, if they so desire, later extending them into external partnerships as experiential/service learning opportunities. Last but not least, nothing here is "mandatory," but with a group of colleagues as motivated and dedicated as SAS faculty, the sky's the limit.

Phase 1: Advertise

The desire to announce more clearly a commitment to civic engagement begins with the expansion of our departmental mission statement, building into it an emphasis on the five Civic Engagement SLOs noted earlier. I have presented the findings of both the pilot and full-scale survey noted above to SAS department faculty, and they have expressed unanimous support going forward. Refreshing the departmental website and its message does not entail master syllabi revision, but it does make better known our commitment to shaping civic-minded graduates. Beyond that message in itself, the departmental SLO's become "adoptable" alongside those required course SLO's noted in master syllabi. I am happy to report that carrying out this first phase was relatively simple. Access to our webpage editing module was secured and I have modified the original mission statement to include that clearer expression of commitment to civic engagement in addition to the inclusion of our five new SLO's.

Phase 2: Itemize

As of writing this article, the process of brainstorming with SAS faculty to compile a list of civic engagement-centered activities already is ongoing. This collaboration ultimately will render by year's end a shared list of activities and assignments, workshops, or external events/initiatives that further stimulate civic mindedness and engagement among our students. As of writing this article, a fascinating inventory has begun to take shape. Highlights from it are as follows:

Prof. Ellen Eason-Montgomery says *"Students in two sections of Juvenile Justice - Criminal Justice 114 at Harold Washington are involved in a mentoring project for their Civic Engagement component of the course. Students in Criminal Justice 114 are responsible for selecting an issue in juvenile justice - and working to advocate on behalf of their position - finding stakeholders and presenting their findings/concerns/plans- we have been working on this in conjunction with the American Bar Organization. Brian and I are fine-tuning our Criminal Justice 104: Street Law course such that students will have more opportunities to be civically engaged at the Daley Center and one other social service organization in the city. Criminal Justice 202: Issues in Criminal Justice is being further developed in Spring 2020 so that the course can be included as part of the HWC Diversity Initiative and will also include opportunities for Civic Engagement.*

Dr. Jeffrey Gorham says, *"Along with a group ethnographic project, students write a three-page paper narrating how the application of their project can be considered civic duty or useful as a business or marketing solution. After they have finished, I am requesting them to return to those they interviewed and discuss if there is any way they could collaborate on a community project. Ex. if 'gentrification' was the topic, each group member would write a paper citing additional references on its application for urban planning or how their research paper would support a local grassroots/community movement. Even though these are more than intro student "reflections" but not backed by trained Anthropological researchers, it is engaging students with the Chicago community."*

Dr. Aaron Lefkovitz says, *"In my History 117 course, students investigate one or several Chicago neighborhoods, including observations of the neighborhood's racial, gender, sexual, ethnic, class, and other dynamics, as well as institutions and neighborhood outreach groups providing various types of assistance."*

Prof. Luis Martinez says, *"For POL SCI 201: National Government, students provide a list of their seven (7) elected representatives' names and the district they represent: 1. City of Chicago Alderman, 2. Cook County Commissioner, 3. Illinois State Representative, 4. Illinois State*

Senator, 5. U.S. Representative, 6. Both U.S. Senators. I also have them do an in-class presentation on a Federal Government agency of their choosing. I also ask who is registered to vote, who has voted and some have even served as an election judge in the past, most notably through the Mikva Challenge. I want them to be able to distinguish between the different levels of government and who represents them, and what functions does the National government perform for our tax dollars.

Phase 3: Expand

From our aforementioned list in progress, the intention is to build upon it as a team, potentially by establishing more formal connections with civic outreach organizations in the area. As we share and devise new activities/assignments across disciplines, my hope is that service learning opportunities beyond those already offered by way of Child Development, Criminal Justice, and Education coursework will flourish in partnership with select, external agencies. In the not so distant future, the end result should be a kind of "service learning network" tied to existing activities, stimulated by faculty recommendations, and upheld by professional collaborations intended to offer students promising experiential learning opportunities. Nearby organizations with which partnerships can be forged are as follows:

- Back of the Yards Neighborhood Council
- Big Brothers Big Sisters
- Cease Fire Chicago
- Chaddick Institute for Metropolitan Development
- Civic Leadership Academy
- Chicago Architecture Center
- Chicago Cares
- Chicago Coalition for the Homeless
- Chicago Cultural Center
- Chicago Foundation For Women
- Chicago History Museum
- Chicago Mentoring Collaborative
- Chicago Park District
- Chicago Public Libraries
- Cornerstone Community Outreach
- Deborah's Place
- Dusable Museum of African American History
- El Rescate
- Facing Forward To End Homelessness
- Forefont
- Greater Chicago Food Depository
- Illinois Holocaust Museum and Education Center
- Institute for Research on Race and Public Policy
- Junior Achievement of Chicago
- Latinos Progressando
- Little Brothers - Friends of the Elderly, Chicago Chapter
- Lumity
- National Museum of Mexican Art
- North Side Housing and Supportive Services
- Westside Justice Center
- YMCA

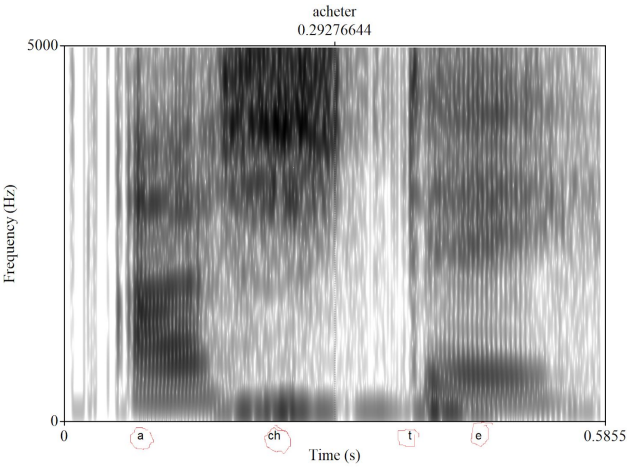
World Languages/ ELL: Using Praat to Facilitate French Vowel Acquisition: The Right Tool for the Right Job
By Matthew Williams

Professor Andrew Aquino-Cutcher and I are working together to study his students' process of acquisition of French oral and nasal vowels. The students are challenged to produce the sounds of French--including vowels--with as much accuracy as possible, yet this is not always easy.

One common practice is to listen to a sound as spoken by a native speaker and then to repeat it, a simple proposition if the student is able to distinguish the sound being modeled and can reproduce it using the same tongue position, jaw position, and lip rounding as the native speaker used. If the student cannot distinguish the sound being modeled from other sounds, or is not sure about the proper tongue position, then they will most likely fail to produce the modeled sound, and frustration with themselves and with the acquisition process may likely be the result.

Professor Aquino-Cutcher wanted to find a method of vowel modeling that provided more data than just sound which the students could then use to more reliably differentiate

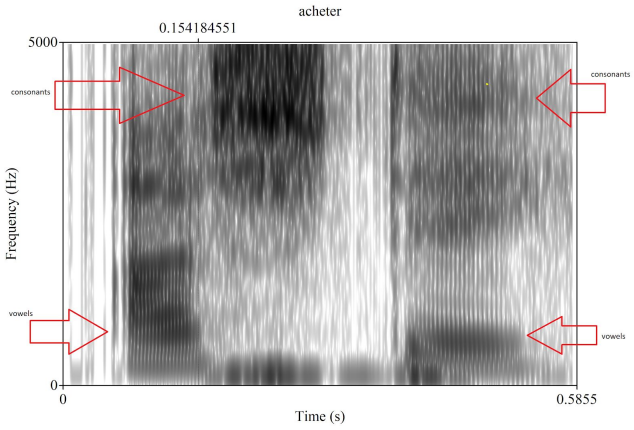
between sounds that they are trying to accurately perceive and produce. To do this, we are using an open source speech analysis program called Praat.[1] This program is used to record sound, including vocal sounds, which can then be analyzed via an audio spectrogram, which is a visual representation of sound constructed using an algorithm known as a Fast Fourier Transform (FFT). The FFT algorithm is useful because it can represent complex sounds such as the human voice which has many complex components. Varying tongue position to constrict the air passage at certain points within the mouth, as well as adjusting jaw position and lip rounding, for example, will alter the shape of the oral cavity, enabling the creation of unique sound resonance patterns. Furthermore, a spectrogram analysis will show the unique pattern for each vowel and each consonant in a natural language regardless of how high or low an individual's voice might be, giving a language learner a tool to differentiate sounds that are difficult to discern by ear alone.



The spectrogram above is a picture of the resonance patterns for the French word 'acheter' as produced by a male native speaker. The letters of the word are spread out along the bottom of the image so as to correspond with the part of the spectrogram in which they occur.

- The x axis shows time (note that it took a bit less than 0.6 seconds to say the word).
- The y axis shows sound frequency in hertz (Shanding near the bottom of the spectrogram shows sound at lower frequency that is characteristic of vowels whereas shading near the top of the spectrogram shows sound of higher frequency which is characteristic of consonants such as 's', 'th', 'sh', or 'ch'.).
- The shading shows amplitude (the darker the shading, the higher the amplitude). The areas where shading is darkest represent resonant frequencies called formants. Each sound has a unique formant pattern.

Refer to the spectrogram below for help locating these areas of the spectrogram.

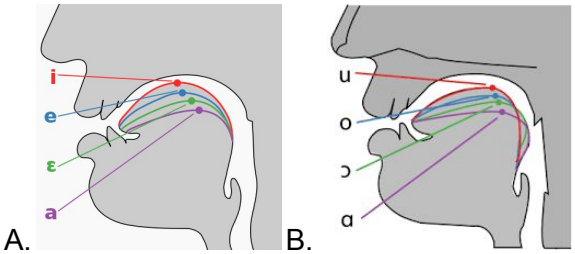


Thus, using Praat provides a way for learners to see and analyze a spectrogram of a native speaker's rendition of a sound followed by a spectrogram showing their own attempt at producing that model sound. The learners are then able to compare the visual images of the spectrograms to determine if a particular sound they are producing matches the model. Such visual data allows learners to verify their actual (rather than perceived) language production which, we hope, will enable them to move to a target-like pronunciation of French vowels. Of course, some amount of preparation is required for this to be successful.

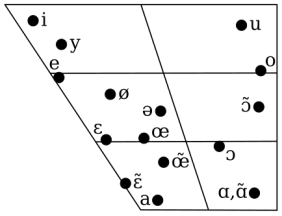
First, we plan to have them study diagrams of the mouth. Diagrams A and B below show

[1] Praat is available for free download at:
- http://www.fon.hum.uva.nl/praat/ (Praat Website)
- https://web.stanford.edu/dept/linguistics/corpora/material/PRAAT_workshop_manual_v421.pdf (Manual)
- https://www.youtube.com/watch?v=P5FM7dQPJuk (YouTube Tutorial)

various tongue positions that produce particular vowels in the French vowel inventory. The letters representing the vowels are shown in International Phonetic Alphabet (the letters to the left of each arrow in Diagrams A and B are correspond with discrete vowel sounds that are formed when the tongue is in particular positions).



A. B.



C.

Diagram C is an abstract rendering of a much larger inventory of vowel positions in the mouth. Here, the x axis indicates vowel position in the front-back range (vowels to the left are further to the front of the mouth and vowels to the right are near the back of the mouth), and the y axis shows vowel position in the high-low range (vowels at the top are pronounced with the tongue raised close to the palate, and vowels near the bottom are pronounced with the tongue lower in the mouth and the jaw opened wider).

After studying these diagrams, learners would select a particular vowel to practice. They would then download a .wav file of that sound from a trusted French pronunciation website provided by the professor. They would then open the .wav file in Praat and produce a spectrogram of the sound.

Next, they would use Praat to record their own version of that sound and produce their own spectrogram. They would then be able to analyze the two spectrograms and search for contrasts. If theirs differs from the model, then they could adjust their tongue position (or other articulatory gesture[2]) and record themselves again. This process can be repeated until the student is able to produce a spectrogram that matches that of the native speaker's model.

We piloted this procedure in Summer 2019 and came away with a more streamlined set of procedures that were clearer for the learners. This semester, we will test the new procedures to make sure they are clear and can be carried out efficiently. If possible, we will do a small scale pre-assessment to compare with the results after they use Praat. We are hopeful that this new procedure will enhance acquisition of many French vowels which have given Professor Aquino-Cutcher's students, and students around the world who are learning French pronunciation, such difficulty.

Research Analysis
By Gustav Wiberg

I teach chemistry and physics part-time at HW. Student learning has always been an interest of mine. In the microcosmos of my own classroom, I toy with complex chemical and physical concepts to deliver them in chewable bites for easy student digestion. In this way, I am concerned with how students learn or digest those chewable bits.

This fall, I am serving the HWC Assessment Committee (HWCAC) as a research analyst. Since I joined the HWCAC, the committee has opened up my eyes to how very complex student learning really is. By participating in the discussions of the committee, I have had the opportunity to look beyond my classroom walls and think about how learning happens in music or the library. For example, I have come to realize the importance of concepts that permeate all subjects, such as quantitative reasoning. Quantitative reasoning or literacy is a skill that I would expect most students to have in my chemistry and physics courses; however, based on the committee's recent quantitative reasoning report, it is not something I will take for granted in my classroom. In fact, it is a concept I will emphasize going forward.

[2] An articulatory **gesture** is one of several elements that make up the articulation of a sound such as tongue placement, breath, lip-rounding, jaw opening, etc.

Thus, participating on the committee is like having professional development every week. Everyone should join the assessment committee, adjuncts and full-timers alike.

Assessment Institute IUPUI Presentation By Carrie Nepstad

On October 15, 2019 Jeffrey Swigart and Carrie Nepstad presented at the Assessment Institute in Indianapolis with their presentation entitled, "Assessment Committee Work as a Form of Professional Development". This talk described the history of the HWC Assessment Committee (HWCAC) and how it has grown over the years to include the officers of the committee, but also an assessment liaison for each academic department. In preparation for the talk, we researched the committee's archived meeting minutes and determined that since 2003 when the committee was revamped, 43 different people have served in leadership roles on the Assessment Committee (30 of these have served in the last 7 years as the charge and number of leadership positions has expanded). This means that 43 of our faculty have spent at least one semester attending weekly meetings and engaged in assessment work. This process and the products of this work are fully documented over the years in biannual editions of the *Assessment Times* newsletter and all HWCAC reports, which are housed on the website.

That is compelling! Until we looked at the numbers, we hadn't realized how many people the assessment committee has supported over the years in terms of preparing them to do assessment work. As we reflected on this process, we thought about how time spent in the community of weekly assessment committee meetings is itself an effective method of professional development for faculty, administrators, and staff. To compile a more detailed picture of what this has meant to people, we administered a survey to assessment committee members past and present. The 23 survey respondents include full-time faculty, adjunct faculty, administrators, and staff. 82% of respondents answered that they have spent time in committee meetings even when they were not compensated with a stipend or release time. This fits with what we have observed in terms of people participating in meetings before they decide to serve in an official leadership role.

In response to questions about what this committee work has meant to them, respondents specifically mention the collaborative nature of the work:

- The people of committee is what kept my interest initially (kind, knowledgeable, vibrant, enthusiastic about our students' learning). Then, I found myself enjoying the regularity of the weekly meetings and the feeling of accomplishment that came from working at relevant intervals with the other faculty
- Close colleagues with shared interests beyond department or discipline. Getting stuff done that is bigger than all of us
- Critical feedback from colleagues
- Getting out of my department silo and regularly seeing people I admire and enjoy being with in association with projects that seem like they could be meaningful/valuable for students and the college.
- Snacks!

During talk at the Assessment Institute, we shared that assessment committee work as a form of professional development is a home-grown, organic approach that meets the learning needs of assessment committee members at various levels of development in

terms of each person's expertise in assessment.

The slide below illustrates the developmental process of an Assessment Committee member over time. Assessment committee work as a form of ongoing professional development is a unique approach, and several participants took pictures of our slides and asked questions. We tried to make the experience fun for participants in the same way we might run an HWCAC meeting. Our closing was an offer of snack consulting, either by looking at the Trader Joe's website or by sharing recipes. The audience laughed, but then many people actually did approach us afterwards to request contact information and ask more detailed questions about how to improve assessment participation at their colleges.

Committee Members

Chair: Erica McCormack
Vice-Chair of Unit Assessment: Jeffrey Swigart
Vice-Chair of Gen Ed Assessment: Carrie Nepstad
Research Analysts: Fernando Miranda- Mendoza and Gustav Wiberg
Online Learning Assessment Coordinator: Yevgeniya Lapik
Coordinator of Co-curricular Assessment: Michael Heathfield
Secretary: Shawntay King
Unit Liaison for Art & Architecture: Paul Wandless
Unit Liaison for Biology: Yevgeniya Lapik
Unit Liaison for Business: Bridgette Mahan
Unit Liaison for English, Speech, Theater: Kristin Bivens
Unit Liaison for Humanities & Music: David Richardson
Unit Liaison for the Library: Todd Heldt
Unit Liaison for Math: Camelia Salajean
Unit Liaisons for Physical Sciences: Samar Ayesh and Phil Vargas
Unit Liaison for Social & Applied Sciences: Domenico Ferri
Unit Liaison for World Languages & ELL: Matthew Williams
Working Members: Terrance Hopson, Loretta Visomirskis, Jennifer Vogel, Jack Whalen

Find us at: www.ccc.edu/hwcassessment

Index