Association for the Assessment of Learning in Higher Education

PROMOTING ASSESSMENT FOR LEARNING

Spring 2017

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President's Letter

By Catherine Welburg



Catherine Wehlburg is President of the AALHE and Assistant Provost for Institutional Effectiveness at Texas Christian University. She can be reached at <u>c.wehlburg@tcu.edu</u>

As we all know, assessment isn't easy. Explaining what we do to people outside of higher education is almost impossible (I think most of my non-higher education friends think I do some type of diagnostic work with students). Trying to engage with faculty, staff, and administrators who work outside of the field of assessment is just as challenging. Unless we can work with our faculty colleagues within their disciplines to assess student learning, we lose the real opportunity to make a lasting difference in higher education.

This issue focuses on discipline-specific assessment. The types of program-level assessment that we do on our own campuses are essential - and not just because they are required by our accreditors. Our faculty are the ones who teach. They are the ones who need assessment data in order to make real and substantive changes that can improve learning. And that's what it's all about - improving and enhancing the learning of our students. To use a phrase in the title of Sheri Beeler's and John Hogue's article in this issue, we must truly be a "guide on the side" of our faculty colleagues to learn from them, support their work in assessment, teaching, and learning, and to translate their discipline-specific work into something tangible that can also be used for accountability. It isn't easy - but we're in this together. And AALHE is here to provide you all with networking, resources, and great information!

Speaking of great information, I am looking forward to seeing many of your at our conference in June (<u>http://www.aalhe.org/mpage/2017Conference</u>)! For the first time ever, the AALHE conference will host pre-conference workshops prior to the official start of the 7th Annual Conference – these will be longer format sessions that will provide more in-depth information. Sign up for the conference and these workshops soon – last year we had to close conference registration a bit early because we filled all of the available spots. We've got more space this year – and we don't want to turn anyone away!

President's Letter

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We're excited to have Randy Bass (Vice Provost for Education and Professor of English, Georgetown University) and José Antonio Bowen (President, Groucher College) as our keynote speakers. This will be one conference that you don't want to miss! The AALHE assessment conference

- □ Provides professional development opportunities for the advanced assessment practitioner;
- □ Provides professional development for those in the next generation of assessment professionals;
- \Box Connects assessment professionals with others in the field; and
- □ Leads and advocates best practices in assessment.

Enjoy this issue of the AALHE Intersection!



PROMOTING ASSESSMENT FOR LEARNING



2017 ANNUAL CONFERENCE JUNE 14 - 17, 2017 HYATT REGENCY LOUISVILLE, KENTUCKY

For more information, visit: <u>http://www.aalhe.org/2017-conference</u>

Note From The Editor

By Josie Welsh



Josie Welsh, Editor-in-Chief Spring 2017 Edition

The call for papers for this spring edition of Intersection was announced in February as "By Faculty, For Faculty: Discipline-Specific Assessment."

We had a fantastic response to the call, and we chose to publish those articles that provided specific tools and techniques that may be of interest to your faculty at the program level of assessment. We start with a content analysis of last year's presentations at the sixth annual conference of AALHE. Findings confirmed that program-level assessment is of high importance to our members. Next, we present some examples of formative and summative assessment within an art department, capstone assessment in biochemistry and molecular biology, and intrusive advising designed to retain and graduate kinesiology majors. We close with advice from Vice President of the Middle States Commission on Higher Education Sean McKitrick, who maintains that the interpretation of results of all program-level assessment is "best led by those who can use the data. Data should be looked at by those most gualified to identify where and what action to take." Take a few minutes to enjoy examples from faculty to faculty as they conduct program-level assessment.

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Editorial Board: David Eubanks, Lisa Mehlig, Gray Scott, Jane Marie Souza, and Josie Welsh

2901 Richmond Road, Suite 130-318, Lexington, KY, 40509 | 859-388-0855 | info@aalhe.org

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INTERSECTION / SPRING 2017

By Christine Robinson and Mingwei Qiang

Assessment mandates and accreditation agencies have contributed to the rise in the number of assessment personnel. Since only a small number of academic certificates and degrees exist, professionals require different methods of education. The AALHE conference attempts to provide valuable learning and professional development opportunities for those at the beginning and advanced levels.

Each year the AALHE Conference & Events Committee plans the annual Association conference. This includes the conference theme, speakers, and presenters. Feedback about the conference and its contents are gathered from surveys both during and after the conference. Results are taken into consideration for the next year's event to ensure the conference is achieving its four purposes of

- Providing professional development opportunities for the advanced assessment practitioner;
- Providing professional development for those in the next generation of assessment professionals;
- Connecting assessment professionals with others in the field; and
- Leading and advocating best practices in assessment.

With the number of local, regional, and national assessment conferences, where does AALHE fit? How is this conference different in terms of the professional development opportunities? Why should assessment practitioners spend their limited amount of precious dollars here? The answers to these questions will help AALHE develop its unique identity and place in the field of assessment.

One method of understanding AALHE's identity is to study its conference session themes and trends. In this article, we will discuss the statistical analysis we conducted on 2013-2016 accepted, conference proposal abstracts. The purpose of the analysis was to identify the prevalent themes and trends for the past four years.

A content analysis of accepted proposal abstracts was conducted using a data science technique named the Topic Model. Before applying the Topic Model, three critical steps are necessary in order to make the dataset suitable for analysis (Feldman, 2013). These steps include data preparation, data processing, and exploratory analysis. Normally 60%-80% of the time will be spent on these upfront processes.

Data preparation is the transformation of data into a form suitable for further analysis. It is a process that involves changing written compositions into readable formats for the computer. One challenge of the AALHE documents was that they were organized to be read easily by reviewers; however, this format is not compatible for advanced statistical analysis purposes. During data processing, the key approach in this step is the transformation of texts from our abstracts to a "bag of words"

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(Feldman & Fresko, 2006). This required the standardization of words from the text. First, we performed tokenization upon the text, which is the process of breaking a stream of text (such as sentences and phrases) into individual words called tokens. Next, we cleaned these tokens by eliminating the lower case, and white space, and punctuation. Lastly, we reduced the tokens or words to the base form using stemming. For example, "assessed" will be converted to "assess" after stemming.

After transforming a text into a "bag of words", we calculated the frequency with which the words or terms appeared. Common but not so meaningful words like "the", "a", and "to" were removed to eliminate their influence on the analysis. To discover the recurring patterns of groups of words, we used the Latent Dirichlet Allocation (LDA) technique. (Blei, 2003; Blei, 2012) It is a widely applied practice and tends to perform better on a single function and smaller datasets; this matched our needs and purpose.

	Tapia 1 Tapia 2 Tapia 2 Tapia 4		Topic F		
	TOPICI	TOPIC 2	Topic 3	TOPIC 4	TOPIC 5
Word					
assessment	0.004994	0.000244	0.000245	0.033719	0.000237
learning	0.000238	0.002686	0.000245	0.000257	0.000237
student	0.000238	0.005128	0.005153	0.002831	0.021538
session	0.000238	0.000244	0.000245	0.000257	0.078343
faculty	0.000238	0.000244	0.012515	0.000257	0.000237
data	0.000238	0.000244	0.000245	0.000257	0.00497

For example, LDA produced the following results on AALHE's proposals data:

Table 1: Word Probabilities Matrix

Table 1 lists the words and their probabilities for each topic. The higher probability, the closer this word is related to the topic. For example, "assessment" has the highest probability for Topic 4. If we sort the probabilities of all words on each topic, we can identify the rank order of words and use these top ones to interpret the topic.

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	Topic 1	Topic 2	Topic 3	Topic 4	Topic 5
1	learning	student	session	faculty	process
2	outcomes	learning	development	learning	improvement
3	learning_outcomes	student_learning	staff	workshop	meaningful
4	course	information	evidence	teaching	improve
5	assessments	achievement	analysis	accountability	quality
6	activities	model	accreditation	engage	reports
7	assessing	resources	services	campus	peer
8	development	measure	share	impact	review
9	improvement	campuses	designed	examine	training
10	focus	outcome	framework	focused	peer review

Table 2: Top 10 Words Table

Table 2 lists the top 10 words for each topic. These are sorted in rank order. The word "learning" occurs as a top word in Topics 1, 2, and 4. However, the other top words within each of the topics help distinguish the types of "learning" (Chang & Boyd-Graber, 2009). For example, one could interpret that Topic 1 relates to the actions associated with measuring "learning", while Topic 4 is associated with the activity of faculty in the "learning" process.

	Topic 1	Topic 2	Topic 3	Topic 4	Topic 5
Abstracts					
doc 1	0.035211	0.049296	0.035211	0.049296	0.091549
doc 2	0.02809	0.039326	0.02809	0.039326	0.02809
doc 3	0.042169	0.03012	0.03012	0.03012	0.126506
doc 4	0.039683	0.071429	0.039683	0.039683	0.055556
doc 5	0.032895	0.072368	0.046053	0.032895	0.032895
doc 6	0.039683	0.039683	0.055556	0.055556	0.071429

Table 3: Abstracts Probabilities Matrix

Table 3 lists the probability of a topic to a document. Each document corresponds to multiple topics with comparable probabilities. This simply means that the document is related to all those

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topics but in different proportions as indicated by the probabilities. If we sort the probabilities of all topics for each document, we will find the topic to which a document is most related.

These tables display the intuitive mechanism of how the Topic Model or LDA algorithm is analyzing the data. These Topic Modeling outputs are not easily digested; therefore, visualization tools are useful and valuable for interpretation. We used the visualization tool named the Intertopic Distance Map to facilitate this effort.



The Intertopic Distance Map consists of two ways to visualize the data. On the left in the above diagram are bubbles marked with numbers which represent the 20 topics generated. The distance from one bubble to another indicates how these topics are grouped and connect to each other. Once we select a certain topic, the 30 most relevant terms for that topic appear in the right diagram. There are two methods to interpret the relevancy of terms to the topic. One method is how frequently the terms appear in overall abstracts (blue colored bar) and the other method is how dominant the terms are in this specific topic (red colored bar). For more flexibility in considering both methods, an adjustable weight parameter, λ , is available. Larger values of λ

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mean the terms occur more frequently in all topics and small values of λ mean the terms are dominant in this particular topic. We choose a smaller λ . Table 4 is the result of our analysis with categories, topic titles, and complementary terms.

Category	Sub-category	#	Торіс	Terms			
Learning		1	Learning Outcome	Course	Activities	Assessment	
		2	Student Learning	Information	Achievement	Model	Resource
Assessment		6	Assessment Results				
		8	Assessment Support				
		11	Assessment Process				
		14	Assessment Activities				
Others	Faculty and	3	Staff Development	Analysis	Accreditation	Services	
	Staff	4	Faculty Learning	Workshop	Teaching	Accountability	
	Review	5	Peer Review	Review progress			
		10	Program Review	Program assessment	Goals	Issues	Case
	Education	15	General Education				
		20	University/College				
	Independent	12	Curriculum Mapping	Assignment design			
		7	Students Feedback	Formative	Performance		
		9	Critical Thinking	Rubric			
		17	Institutional Effectiveness	Strategies			
		19	Data	Measure	Implementing	Tools	
		13	Assessment Practices	Session	Presentation	Experience	
		16	Program Participants				
		18	Research	Institution			

Table 4: The Interpretation of 20 Topics

The above results may be used to understand topics of most interest to those responsible for the development of assessment professionals. Additionally, these topics may be used to communicate the meaning of words or to identify a common set of vocabulary for assessment professionals.

The Topic Model identified the most common topics from the past four years of AALHE proposal abstracts. A Multidimensional Analysis was conducted to determine trends by the frequency of words, topics, and audience experience.

1. The Wordcloud revealed that the most common words in the proposal abstracts by year matched the shift in the conference themes. In 2013, the most frequent term was

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assessment. In 2015, the other top topics were directed toward the development of assessment skills in non-assessment practitioners.

3. An analysis of the expected experience of audience participants was conducted. In 2013, more proposals addressed all audience levels. In 2014, the Beginner and Intermediate levels increased, but the All of the Above level disappeared. In 2015-16, All of the Above level returned to dominance, while the Intermediate level declined. Overall, the number of proposals at the Advanced level did not change and were very few.

4. Finally, an analysis of the most frequent topics available to each audience level was conducted. For all but the advanced level, Learning Outcome ranked in the top five. In the Beginner and All of the Above levels, Staff Development and Student Learning ranked in the top five. In the Advanced and All of the Above levels, Faculty Learning ranked in the top five.

The Multidimensional Analysis provided valuable information about the trends in abstract content over time. The trend results identified valued and untapped topics by year. Results also revealed to what audience levels the proposals were directed. Trend results may be used to identify future topics and larger advanced-level audiences for AALHE conferences.

For the future, we recommend that the AALHE Conference & Events Committee collect the number of participants per session and use the results in conjunction with Topic Model and Multidimensional Analysis to further determine the interest level of sessions within a topic. Additionally, we recommend that the AALHE Conference & Events Committee identify the needs of advanced-level audiences, as only six have been presented over the past four years.

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Christine Robinson is the Executive Director of the Office of Assessment and Accreditation at the University of North Carolina at Charlotte. She can be reached at <u>crobinson@uncc.edu</u>.

Mingwei Qiang is a Graduate Research Assistant in the Office of Assessment and Accreditation at the University of North Carolina at Charlotte and current graduate student in Mathematical Finance. He can be reached at <u>mgiang@uncc.edu</u>.

Quantitative is Useful, but Qualitative is Meaningful: Meaningful Assessment Measures in an Art Program By Frank A. Pishkur and John D. Hogue

At Missouri Southern State University, we engage in assessment because we need to know what is happening with our students. Art is not an easy discipline to complete. If the student does not have the drive and the self-discipline to put in the time needed and, most importantly, does not enjoy doing so, we need something to let the student know in an organized and systematic way while we can still complete him or her in a potentially related field. We also have a great number of solid students who for various reasons do not have confidence in their abilities, and early career assessment gives us a formal place to tell them they are doing well and that they should stick with it.

In our Art department, the Foundation Review is the main assessment measurement our faculty currently discuss. In this Foundation Review, our sophomore students compile a portfolio of work from specific art classes, write a paper, and formally present their artwork to a panel made up of all of our art faculty to enter into the Bachelor of Fine Arts (B.F.A.) program. The faculty rate the students' work using 1 to 5 scales and provide written feedback. The scales were anchored using only column 5 in the attached rubric. We set aside one day of the semester for this review. About two-thirds of our students are ready for this in the spring, while the other third and incoming transfer students undertake this in the fall. We score the students on the oral presentation (overall quality, verbal concepts/processes, professionalism/engagement, and critical analysis), on the written paper (critical analysis and engagement on campus and with the discipline), on the preparation of the portfolio, and on specific skills developed in our two-dimensional design, three-dimensional design, color theory, basic drawing, and digital photography courses. The specific skills are scored on technical skills and conceptual ability. Faculty also grade the students on two additional courses from their specific areas of interest, which include technical skills, conceptual ability, and overall merit. Finally, all quantitative scores are accompanied with qualitative, personalized feedback.

We have been doing the Foundation Review for decades. It used to be a graduation check for our second semester juniors, but we found that by doing the review earlier, we can give feedback to students and help them decide if they really want to be in the field. It is also now early enough in the program that students can easily change from one degree to another within the department without having taken multiple courses that will not apply to the new choice. All students complete this review regardless of being an art education, studio, visual arts, or graphic design major and it serves as the entrance exam for enrollment into our capstone course. In addition, a high score on this assessment allows a prospective B.F.A. student to bypass submitting a separate portfolio for acceptance into one of those two programs.

For our 16 students in 2015-2016, we did a quantitative analysis of these scores. We found that for the Oral Presentation subscores, Critical Analysis had lower scores than the other three categories, and Overall Quality had higher scores than Verbal Concepts/Processes but not Professionalism/Engagement. See Figure 1 for means and standard errors. For the Written Response section, Critical Skills (M = 3.92, SE = .12)) were significantly lower than Engagement (M = 4.20, SE = .12)

.17). When presented with these analyses, the main interpretations our faculty had were that students could not write effectively, did not have art history knowledge, and were not ready for the philosophical content. These were concerns the faculty have had for a couple of years, and the numbers reaffirmed these findings.



Figure 1. Oral Presentation Subscores. Students scored lower on the Critical Analysis section of their oral presentation.

Because of these interpretations, we moved the Art History survey classes from a 300 level to a 200 hundred level and moved the Art Theory class from a 100 to a 300 hundred level. We also made both Art History survey courses prerequisites for application into either of the B.F.A. programs as well as to take the now 300 level Art Theory course. Starting this semester, we moved our Foundation Review a month later (now early April of their Sophomore year) to give our students time to show works from the current semester, which should give us a better sense of where they really are. Portfolio materials are tied to different courses and some students were not having meaningful materials from their current courses. We also standardized the 1 to 5 scales in 2016 (attached) based on the qualitative feedback and have used it since. Long-tenured faculty did not care about the rubric as they felt like they knew what they meant when they gave a score. Having it for newer faculty members will be helpful, and the language will be useful for putting together a similar rubric for the capstone experience (Senior Exhibit), which will then be another meaningful assessment measure. At some point the rubric will also be good for consistency between the tough and easy judges to be consistent. We are glad we have it, and we are glad we have the language, because it will help moving forward, and it will be immediately helpful for the students as they try to interpret what their scores mean.

The Quantitative evidence is nice for us to have, but it is the qualitative comments that are more useful to the students. "You stuttered a lot" is more meaningful to the students than a low score. We consolidate the comments and sanitize them so the students cannot determine which professor said it. If we have them, we leave contradicting comments out of the feedback. There is a lot of coaching in the Foundation Review, and it is our one big opportunity to give them experience giving a formal presentation to a group. It is especially essential for our design students. Those students will be standing in front of a group and discussing their work as a job, so they need those skills. It is the only time in the curriculum where we can give them that.

Universal expressions do come across among different raters. It is hard to qualify it all in one language or standardized format. For example, one time I (Frank A. Pishkur) was in Korea evaluating a graduate student's artwork with Korean faculty. The Korean faculty gave their feedback in Korean, and I did not understand a lick of it. After about four or five reviews of me giving my feedback in English, a Korean faculty turned to me and said, "You always say same the same thing we do."

Our Senior Exhibit is our capstone course and major field assessment. The new measurement we are introducing is based largely on the Foundation Review, so that we can compare results. Previously, the assessment for it did not align with the previous review in any meaningful manner, making it quite difficult to compare early and late stages of the student's education. In this review, instead of an oral presentation, we assess their senior level creative research project, which is a physical, publicly viewable exhibition. Having an assessment that aligns with the Foundation Review will show us a score for specialized work in the specific degree area and will also show us growth from the foundation level. Students also submit a digital portfolio which shows the auxiliary work students do (typography, packaging design, identity systems, for a design major, secondary media or concepts for studio majors, etc.), which aligns somewhat with the previous instrument. There is also a written component based upon their professional writing: artist's statement, letters of application, press releases, etc. While the previous one was somewhat useful, the new instrument will be something truly meaningful that ties directly into our departmental objectives.

We are also looking into making our institution's newly revamped research fair an additional requirement for the Senior Exhibit. It might be a way to reinforce professional practices in a medium stakes area, and the students could win a gift card for doing it. We are also discussing about separating studio and graphic design from the capstone course. There are issues where the skills do not align, and separating the majors would get rid of that problem and focus specifically on what is important for each discipline. Separating the courses could also make assessment easier, but the separation will be difficult to manage administratively.

Our other meaningful assessments are informal but essential. BFA students have a three-faculty

review panel. Students meet with those professors every semester for four semesters. Those faculty members are watching the students as they grow and are helping the students tailor projects specifically to what the students claim they want to do. Faculty point out what the students are doing versus what they say they want to do and help them figure out how to align. Committees talk about the students and do a lot of "super advising." It is a pretty heavy commitment on our end, and some faculty are overwhelmed because they serve on a large number of the committees. It was designed to strengthen the quality of work that the students do so that they are better positioned to get into graduate school or to be hired for employment.

We find these assessment measures meaningful because a student can do well in each class individually, but the assessment process allows us to see how the students absorb the lessons and utilize them in multiple fields and directions. We want to know if the students have synthesized that knowledge.

In the Fall of 2016 we started giving the IDEA Teaching Essentials survey (Benton, Li, Brown, Guo, & Sullivan, 2015) as an end-of-the-semester faculty evaluation. It is not as meaningful as our homegrown assessments. IDEA is useful for broad-based information about what is working in the classroom while not so useful for individual student issues. Thus, we used it to compare our department's scores against the School of Arts and Sciences as a whole and then against the university as a whole. Our students scored our faculty higher than the school and the university on almost every item, such as finding ways to help students find their own answers, inspiring students to set and achieve goals that really challenged them, demonstrating the importance and significance of the subject matter, and explaining the course material clearly and concisely. The students, however, stated that their background prepared them for the course requirements less than the institution did as a whole.

After taking these results to faculty, we determined the dual-credit and some of the online Art Appreciation courses had scores in these categories lower than those of our other sections. Because of this realization, we are exploring a mandate to keep the Art Appreciation courses as similar as possible by having a portion of the final exam tied directly to learning goals for each chapter of the text. This is to be universal among all of the various sections. Then, by comparing this portion of the final exam, we will be able to tell if we are actually teaching these students what we say we are teaching them. We are also reviewing the stated course objectives to find out what is actually important to our faculty and will narrow down to specific course objectives we want and to actually teach, so we can revise them accordingly.

The IDEA survey will be much more useful when we have several semesters to compare against and when we have yearly averages. We are glad to have it though so that we will have a baseline for when we incorporate these changes to the Art Appreciation course. Being able to hand the results to the faculty and breaking performance down into specific categories are helpful.

The Foundation Review and Senior Exhibit are more useful for us because we are a performance based, creative field. Each creative project is different than the last and unique to the student. There are some where the craftsmanship might be very important while others where craftsmanship is not important at all as it would detract from the concept. These measures allow for individualized feedback and how well students are doing specifically based on their unique performances. Other disciplines can use a specific measure for every student. For Art (creative fields), where every individual performance is unique, a standardized test breaks down. We reviewed a major field test in Art, but it was out of date and did not match the curriculum at all. We find personalized, qualitative feedback to be most meaningful.

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Access an oral presentation, written response, and foundation portfolio here.

Frank A. Pishkur, M.F.A., is Associate Professor and Department Chair of Art at Missouri Southern State University and can be reached at <u>Pishkur-F@mssu.edu</u>.

JD Hogue, MTBC, MS, MM, is Assessment Coordinator at Missouri Southern State University and can be reached at <u>Hogue-J@mssu.edu</u>.

Being a Guide on the Side: Program-level Assessments in Kinesiology

By Sheri L. Beeler and John D. Hogue

Missouri Southern State University's Department of Kinesiology offers a B.S. in Health Promotion and Wellness, and candidates select a clinical or non-clinical track. The department also offers a B.S.E. in Physical Education (K-12 emphasis). The department emphasizes quality teaching and academic advising while promoting dedicated community and university service. The curriculum prepares future professionals to be successful at promoting healthy and active lifestyles in a global society. It requires mastery of skills from its students before they can graduate. As of fall 2016, the department houses 6 full-time faculty members with 176 students in Health Promotion and Wellness and 55 students in Physical Education. With these programs combined, faculty advise approximately 39 students per faculty member. The Department of Kinesiology engages in meaningful assessment by building interpersonal relationships with each individual student.

How do we engage in meaningful assessment?

We advise them.

Advising is a tool we use to document academic readiness, learning progress, skill acquisition and educational needs of students. We make connections with the students. We have a mass advising day each semester; however, we also expect students to schedule a 15-20 minute, 1:1 advising meeting. The students are expected to come with a schedule and a plan of study. This occurs around week 10 of the semester when enrollment for the next semester begins. Faculty members discuss with each student how to stay on an efficient timeline to graduation and develop an effective schedule. For example, a student might want to delay taking a mathematics course, but the faculty member will explain that the course is a prerequisite and any postponement will delay graduation. Our individualized advising discussions help us find out what is meaningful to our students and keep them on track for success. Information collected includes current contact information, updated degree plan, and anecdotal notes from conversations with the student.

We P.A.U.S.E.

P.A.U.S.E. stands for PREPAREDNESS, ATTENDANCE, UNDERSTAND, SUPPORT, and EFFORT. Faculty determined these items of self-assessment based on what students need to be successful. Students rate these 5 items on a scale of 1 (weak) to 5 (strong). P.A.U.S.E. came about the same time as an institution-wide program called the Great Game of Education. We made it a mini-game, and by doing so, we made this assessment measure meaningful for faculty, students and the institution. We included student rewards and faculty rewards for meeting certain criteria. It is a very popular activity because it incorporates fun and there is something in it for the students. P.A.U.S.E. is departmental, and everyone is involved. The primary purpose is to hold the students receiving a mid-term or final grade of a D, an F or withdrawing from the course with a "W," the number of hours the students have taken, and the early warning signs

Being a Guide on the Side: Program-level Assessments in Kinesiology=

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of academic concern. We keep track of each student individually in order to increase student success and retention.

Through P.A.U.S.E. we also learn how to make programmatic improvements. After reviewing the P.A.U.S.E. results, we discovered that students were struggling with BIO 121: Anatomy and Physiology I. By collaborating with the Biology Department and the Student Success Center, the Kinesiology Department was able to develop and add supplemental instruction (SI) for the course. Although program improvement was not the intention of P.A.U.S.E., it has provided a positive outcome for many of our students as well as other students across campus enrolled in the BIO 121 course. Preliminary results of the supplemental instruction showed that 61% of the students who attended one to eight supplemental instruction sessions earned a C or higher in BIO 121. About 89% of the students who attended nine to 22 sessions earned a C or higher in the course. Furthermore, 86% of the students attending the sessions found them helpful. Because of the initial success, the S.I. program has continued (Plucinski, Johnson, & Hopkins, 2016).

Finally, P.A.U.S.E. led to developing Pink Sheets, which is another meaningful assessment tool explained below.

We use Pink Sheets.

A recommendation of the 2015 Program Review was to develop a better method of tracking our candidates. The pink sheet serves as an entry and exit tracking sheet. The process begins when a student declares a degree program in our department. Often the entry pink sheet begins at Southern Welcome, an orientation and enrollment event designed to familiarize students with campus, connect them with student support services, and introduce them to an academic advisor. Then, we follow up with the exit Pink Sheet to ask why the students are stopping out or not continuing, why they are leaving either the program or campus, or how they are celebrating graduation. We do not make stopping out of the program a negative consequence, and we do not want students to be afraid of coming to tell us that they are leaving or simply changing majors. The Pink Sheet gives us a connection with students, a lifeline, so we can follow up and ask how they are doing, if they are ready to come back, or if they are satisfied with their new direction.

Some students want to know how to return and complete their degrees. They reconnect through the departmental Facebook page (social media), or directly through contact with faculty via emails, calls, or simply stopping by the office. In one example, we maintained contact with a student who had stopped out. We reached out every semester after he left. He could not finish his initial degree. Several semesters later, he said he was ready to finish his degree. We were able to help him find an alternative route to completion. The relationship established when the student was with us, coupled with continual contact and timing, allowed this student to eventually become a degree completer.

Being a Guide on the Side: Program-level Assessments in Kinesiology

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We ask students to lead

Health Promotion and Wellness students take an upper division Practicum in Wellness class, where they work in teams to design, plan, organize, and execute a full-scale, hands-on, health promotion event. We use a checklist and holistic rubric to track competency. Each student is expected to show mastery of the concepts, which include the knowledge, skills, and dispositions necessary for a successful professional.

Practical experience initially started with community partners asking us for assistance with their events and turned into many external partners seeking help setting up events. Faculty want our students to do and learn more through practical, hands-on, meaningful experiences. Our first event was a one-day golf tournament. Faculty realized that students should have an event opportunity where they are engaged from start to finish. After the golf tournament came the 5K. The students lead the entire process with the Director of Internships. We seek sponsorships, but we have a special sponsorship in the form of a scholarship given in honor of an alumna who died of cancer. The event includes presenting the history and accomplishments of this alumna. Students are excited to organize and set up the 5K, even though they have to do all the work. The goal is to improve the previous year's event. It is good for the university and department and for the community. Most importantly, it is good for the students.

How do we know these four strategies are meaningful?

We have an advisory council and an internship evaluation. We use the advisory council for departmental growth. It is a from-the-field report. The advisory committee provides input on current trends and skill sets for both the clinical and nonclinical tracks, as well as input for improvements, revisions and growth. For the internship evaluation, the final question of the intern evaluation asks the agency supervisor, "If you had an opening, would you hire this individual?" Approximately 90% of internship agency supervisors report they would hire the intern. All of these measures provide feedback to the student, the department, the program, and the advisory committee.

Our meaningful assessments keep us in direct contact with the students and allow us to build relationships. Because of advising, P.A.U.S.E., the Pink Sheets, and the practical, handson experience of event organization, we are better prepared to place students in a successful internship. The internship is the culminating experience in the Health Promotion and Wellness degree.

Why do we engage in program assessment?

As a department, we strive to continually improve the quality of our programs. We engage in assessment to assist us in identifying our strengths, weaknesses and opportunities for continuous improvement and growth. We engage in assessment to better prepare our students

Being a Guide on the Side: Program-level Assessments in Kinesiology =

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for their careers by making their educational journeys practical and connected. We are here for the students as we always have been. Does it take time? It does, but the rewards are worth all the time and effort we put in. When we have faculty meetings at the first of the semester, P.A.U.S.E. is one of the first events to go on the semester calendar. Faculty schedule and plan for the P.A.U.S.E. event, mass advising, 1:1 advising, pink-sheet meetings, and health promotion events each semester. It is not a chore or a duty. It is part of our culture.

As Theodore Roosevelt stated, "People don't care how much you know until they know how much you care." We have always believed that cultivating the faculty-student relationship is one of the most important components of our students' success. Many of our students are first-generation students. They often have less family support to attend college, limited access to information about the college experience, and lack the knowledge of time management, college finances, budget management, and the culture of higher education (Wolfert, 2016).

We want to fill in the gaps for our students. That was part of the reasoning behind P.A.U.S.E. Even with the Pink Sheets, it is a challenge to maintain contact with a student, either as a stop out, transfer, or graduate, if you do not have that culture or build that relationship. We have third-party support systems, which are good, but we want to know what happens to our students.

We believe we have developed positive faculty-student relationships with our students, and we work to maintain those relationships. It is important to them and important to the kinesiology department. It is important to retention and ultimately to their success.

Everything we do is for the student's success. Meaningful assessments have been incorporated throughout the program to monitor student success and student growth, as well as program effectiveness and improvement. Ultimately, assessment is implemented to continually improve the program for all students. We are here to guide the students through this journey and help them meet their goals. Growth, accountability, and performance all contribute to student success. Sometimes success is determining they are not in the right place; sometimes success is graduation, and sometimes it is progressing to the next level: graduate school or initial career placement. We are the guide on the side. We can be there for them, but we cannot do it for them. Meaningful assessments provide a path to student and program success.

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Sheri L. Beeler, Ed.D. is a Professor and Department Chair of Kinesiology at Missouri Southern State University and can be reached at <u>Beeler-S@mssu.edu</u>

JD Hogue, MTBC, MS, MM, is Assessment Coordinator at Missouri Southern State University and can be reached at <u>Hogue-J@mssu.edu</u>.

A Capstone Experience for Sustainable Assessment in Science: Biochemistry

By Walter A. Patton and Megan F. Potteiger

Between 2010 and 2014, the American Society for Biochemistry and Molecular Biology (ASBMB, 2014) engaged in the Concept Inventory Project as a response to a national call to establish consensus learning outcomes in undergraduate biology education (American Association for the Advancement of Science, 2011). Building on underlying concepts and theories from physics, chemistry and math (Wright, et al., 2013) and foundational scientific skills (White, et al., 2013), the NSF-funded project led by J. Ellis Bell published a set of essential skills and knowledge that is widely accepted as the expectation for undergraduate students in biochemistry and molecular biology (BMB) programs (Mattos, 2013; Tansey, 2013). At Lebanon Valley College, these skills and expectations align well with our mission, which begins:

The intertwined and inextricable disciplines of biochemistry and molecular biology examine the most detailed processes in living systems and seek to explain those processes in terms of the molecules involved and the transformations those molecules undergo.

The work of Bell and his colleagues, as well as the work of others, has guided curricular development (e.g., the identification of threshold concepts in biochemistry; Loertscher, 2014). In 2015, AAAS published a follow-up report that sought additional effective methods and measures of comprehensive program-level assessment for inclusion in a curated collection of assessment tools for faculty in the biological sciences (AAAS, 2015). However, few examples of defined guidelines and specific assessment instruments are available in published reports (Aguanno, et al., 2015). Herein, we describe a student activity for the upper-division biochemistry laboratory and provide the assessment rubrics that allow us to perform both course- and program-level assessment. It is our aim that these resources be useful for other programs and institutions who seek to develop a sustainable and meaningful program-level assessment.

Our faculty have articulated 11 assessable objectives related to our mission. Five of the 11 are assessed in the 400-level capstone course, Biochemistry Laboratory (BCMB 430). BMCB 430 is a course designed to introduce students to critical discipline-specific methods and techniques as they apply relevant knowledge from all of their coursework in the sciences. A capstone experience, such as a research project, is a natural opportunity to ask students to apply fundamental concepts and skills that they developed throughout their undergraduate experience (Oh, 2005; Paris, 2013). The learning outcomes assessed through this course-embedded experience include experimental competency, communication proficiency, and technology and information conversancy as listed below:

Outcome 3 - Experimental competency

Objective 3.1 - Apply the scientific method to scientific problems. *Objective 3.2* - Identify & utilize the proper methodologies & instrumentation to successfully answer questions *Objective 3.3* - Collect scientific data; laboratory notebooks; data analyses

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Outcome 4 - Communication proficiency

Objective 4.1 - Demonstrate the ability to communicate effectively in written and oral formats.

Outcome 5 - Technology and information conversancy

Objective 5.1 – *Effectively access and utilize the scientific literature.*

At the beginning of the BCMB 430 course, students receive the following general information about their upcoming research projects. Below is the information they received during the '16-'17 academic year.

For your project, you will be asked to answer a question, design an assay, or look for proof of a particular concept. The project may involve work with proteins, lipids or carbohydrates. If you have a particular interest, talk to me; perhaps we can develop something around your interest. As a matter of practice, students are not allowed to simply work on a research project they are already doing in the laboratory of a faculty member or as part of an internship someplace else. Also, we cannot do experiments that will cost hundreds of dollars - \$20 is more like it.

This year's projects involve "Biochemical Transformations" or "Sensors & Sensing." Biomolecules are amazing things. Understanding how chemical transformations occur in biomolecules or biomolecules can facilitate the transformation of another molecule is at the very heart of biochemistry. Some transformations are simple, some are complex and elegant and some are elegant in their simplicity. In these research projects, you will be asked to work with biomolecules found in common dietary supplements from the local health food store..

After approximately six weeks of introduction to essential techniques in biochemistry (e.g., protein assays, protein purification (ion exchange and ligand affinity), enzyme assays (lactate dehydrogenase), and protein electrophoresis, each student group receives information that will guide their specific project; this information is relatively brief, forcing the students to do extensive research on the idea or question they receive. Examples of research project prompts used within the past year include:

- Develop an assay to demonstrate protease activity.
- Can myoglobin be used as an oxygen sensor?
- How can rutin and quercetin be used as sensors?
- Can cinnamaldehyde be used a protein-labeling reagent?
- Demonstrate that you can trap a molecule in the interior aqueous compartment of a liposome and another molecule in the lipid leaflet.

Students must proceed from general learning about the topic area of the project to planning and carrying out experimentation. For some prompts, students may find an established method in the literature, but they are encouraged to think about how they would develop an experiment, given what they know. For example, to work on the project, Demonstrating Protease Activity, a student should rationalize that proteases hydrolyze amide bonds and then ask themselves, "How can I monitor the cleavage of an amide bond? What molecule can I use and how might I detect that change?" Several years ago, one impressive group decided to carry out the synthesis of a small molecule substrate and monitor cleavage of the substrate using MALDI mass spectrometry. Some students enroll in BCMB 430 with substantial research experience, while some student have no research experience, whatsoever; so all students are guided by a detailed list of expectations. For a complete listing of project expectations, please see the supplemental document: http://bit.ly/2msTZzx)

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Prior to beginning the project, students receive general information about how their work on their research project will be graded. Those general guidelines, found in a supplemental document <u>http://bit.ly/2meo2u8</u>, have been used to generate a series of rubrics for assessing student performance on their research projects. The rubrics are used to both grade the research project as well as provide assessment information.

Rubric 1: Objective 3.1 - Apply the Scientific Method to Scientific Problems http://bit.ly/2lsCgTK

Rubric 2: Objective 3.2 - Methodologies and Instrumentation to Test Experimental Hypotheses <u>http://bit.</u> <u>ly/2musAx8</u>

Rubric 3: Objective 3.3 - Methods and Practices for Collecting and Analyzing Data http://bit.ly/2IA7rxm

Rubric 4: Objective 4.1 - Communicate Science Effectively with Peers http://bit.ly/2muCi2N

Rubric 5: Objective 5.1 - Use Literature Search Engines to Find and Use Primary Scientific Literature <u>http://bit.ly/2IA2gh5</u>

Data from student artifacts (n = 12) during the fall '16 semester drew attention to **Objective 3.2: Methodologies and Instrumentation to Test Experimental Hypotheses**; scores were notably lower for items within this objective. The proper use of experimental controls, interpretation of data, consideration of methodological error, thoughtful experimental design, and alternative explanations for findings were all seen as potential areas for improvement. We are now investigating ways to better engage students in critical thinking surrounding experimentation and the gathering of data. Currently, we are incorporating shorter exercises in research design, methodology, and data interpretation into the course so that students can practice and hone their ability to critique both the processes and the products of their research.

We share this assessment, criteria for evaluation, and our findings with the hope that other faculty can modify and use these materials as they seek to engage in meaningful program-level assessment. In our program, the instrument has provided uselful results that help to drive curricular and pedagogical growth, which ultimately serves Lebanon Valley College and our students.

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Walter A. Patton^{1,2} and Megan F. Potteiger³

¹Department of Chemistry and ²Program in Biochemistry & Molecular Biology; ³ Center for Excellence in Teaching and Learning, Lebanon Valley College, Annville, PA 17003-1400 Walter Patton, Ph.D. can be reached at <u>patton@lvc.edu</u>. Megan Potteiger, M.S. can be reached at <u>potteige@lvc.edu</u>.

Interview Questions with Sean McKitrick, Vice President, Middle States Commission on Higher Education

Interview Conducted by: Jane Marie Souza, Assistant Provost, University of Rochester

What advice would you offer to campuses concerned about upcoming changes due to the new administration?

Many things are not likely to change. Overall, what accreditors and the public expect will remain the same. They want to see that public and private dollars are spent on quality education. Also, transparency is expected about what students will learn. We will continue to want evaluations of student learning to be used to discover strengths and weaknesses in programs and have that information acted upon. It really is not sufficient to simply do assessment. The results of the assessments must be used. Institutions are also expected to communicate to internal and external stakeholders how they are being proactive by using data to make improvements.

What do you see as some common misperceptions institutions have regarding reporting on assessment of student learning?

One misperception can be that assessment is a task utilized as a preface to accreditation events. Also, it can be thought that it is the job of the accreditor to translate and interpret assessment data. Assessment is a process, rather than an event and the responsibility for interpretation of results is best led by those who can use the data. Data should be looked at by those most qualified to identify where and what action to take.

Really, assessment is about looking at strengths and weaknesses. People within the locus of control of the findings should decide what needs to be addressed for continuous quality improvement. But not everything needs to be improved. There are strengths that are identified. Sometimes people think we are looking for the bad news, but we are really looking for the process.

There is an unspoken fear that accreditors are looking to ferret out the one department fighting assessment processes. Is every institution expected to have ALL its departments on board and fully implementing the assessment cycle?

The expectation is the preponderance of programs and departments are assessing. However, the focus is not on one area alone. We are looking at the whole institution and the culture around assessment. For example, new programs may not yet have fully development assessment processes in place. A culture of assessment is broader than one department. Also, most departments are assessing even if they don't know they are doing so! In any case, the accreditors expect that everyone is engaged in an assessment process. The ways they go about it do not need to be standard. The key is "defensible" assessment and the commission is open to multiple approaches.

Assessment is relevant in all areas within an institution. Much progress has been made over the years such that organized, systematic assessment is being done nearly everywhere. Therefore, the expectation of assessment is embedded in all the Middle States standards. There is latitude with respect to strategies used. There can be qualitative or quantitative approaches. There is not a need to focus only on metrics. The same quantitative processes may not work in all areas. However,

Interview Questions with Sean McKitrick, Vice President, Middle States Commission on Higher Education

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mission critical activities should promote quality improvement evaluation. For example, the Middle States Standard II deals with integrity. The institution should evaluate the accuracy of its published materials.

The final criterion for each standard enables each institution to articulate the process for how it addresses each of the criteria within the standard.

What advice would you offer to people tasked with writing the learning outcomes assessment section of a Self-Study?

The narrative should be sure to include analysis of how the data are collected and used by the principal stakeholders. Faculty may not be the ones making the budget decisions, but they are making the curricular changes. Faculty play the central role in that they are responsible for delivering quality education. So we would like to know how they are using the data, for example for lesson planning. Presidents can't do that. They can, however, address how the assessments impact the budget.

Instead of a point by point account of every instance of assessment, institutions should present cases of how the information is used for curricular changes and budget decisions. Representative samples are good to see. You must give readers the evidence that assessment information is used regularly. For example, a dean may consider assessment information and the narrative describes how it has been used in decision and budgeting processes.

The key is to avoid so much detail that you bury the reader in it. However, a single example will not suffice either. You should try to offer a balance – offer the appropriate representative cases to demonstrate that assessment data is used routinely and effectively.

Can you talk about how training for peer reviewers is addressed?

Middle States has spent a great deal of time in the past two years reviewing and updating the process for training peer reviewers. We want to clarify what is expected in substantial measure. We have had meaningful encounters with evaluators and team chairs and spent a good deal of time with the first campuses coming under review using the new standards. We've been engaged in continuously evaluating our training processes: conducting observations, surveys, and focus groups. We are assessing our objectives in the training. So we are doing assessment just as the institutions ae doing.

What final thoughts would you have to share with our readers?

Assessment is proactive and positive. We want to help institutions understand that there is value added in the process. It can help institutions be more efficient and effective. Remember this is about more than compliance. It is about engaging in a conversation with the positive and negative information we discover through assessment so that we can ensure our students are well served.

Association for the Assessment of Learning in Higher Education

PROMOTING ASSESSMENT FOR LEARNING

AALHE STAFF

Leah Simpson Conference Director Isimpson@aalhe.org

Jamie Wigand Executive Administrative Assistant jwigand@aalhe.org

> Jenna Caparoso Website Administrator jcaparoso@aalhe.org

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2901 Richmond Road Suite 130-318 Lexington, Kentucky 40509 859-388-0855 • <u>info@aalhe.org</u> www.aalhe.org

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