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In This Issue, Articles Covering

Collaboration,

Classroom Tools,

Classroom Strategies,

and Administration

PRACTICES

METHODS

ENGAGEMENT

LEADERSHIP

IDEAS

**PRINCE GEORGE'S
COMMUNITY COLLEGE**

THE CHANGING CLASSROOM

ENGAGING STUDENTS

Greetings from the Editor

Welcome, and thanks for reading the 2022–2023 issue of the Instructional Forum! Historians may one day differ, but to me, 2023 has (so far) felt like the first "post-pandemic" year. As we walk around between classes, our beautiful Maryland campuses are increasingly looking like what we might have expected in 2019.

A lot has changed, however, in how classrooms are set up and managed. In this issue you can find essays attesting to the evolving classroom, with topics ranging from 7-week courses, "flipping" classrooms, and at-home chemistry kits.

Despite the changes to what classrooms look like in the 2020s, educators' ability to design creative and influential methods to reach students is something that will never change. You will find examples of these methods, as always, in this year's issue.

As pedagogy is dynamic, the articles featured herein attempt to offer perspectives and solutions to issues that are not necessarily unique to Maryland, but serve to catalogue best practices of the community colleges across Maryland.

Cliff Starkey

2023–2024 *Instructional Forum* Call for Articles

For the 2023–2024 issue (Volume 37), the deadline to submit articles is Tuesday, January 16. The topic for next issue will be "The Modern Classroom." Please consider writing an article on what you are doing to effect change, adapt your classes, and increase student success, retention, and completion in relation to this topic.

As always, the Instructional Forum will consider all articles about anything related to instruction at the college level. We also welcome articles from the various instructional support groups, such as the Library, the Writing and Tutoring Centers, the Honors Program, the Book Bridge Project, the Collegian Centers, and more. We also would like articles from academic division deans, associate deans, and department chairs!

Please consider sharing your instruction-enhancing thoughts and research through the Instructional Forum because the work you do encourages and inspires your colleagues!

Submit your articles to InstructionalForum@pgcc.edu as attachments in Word (.docx). Articles should be from 500–2000 words. Please refer to the end of this issue for submission information and documentation format, or email the editor for input.

The Flipped Classroom:
An Innovative Approach for Student Success

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The health care environment is multifaceted and constantly changing. Nursing graduates are required now more than ever to adapt quickly to the complex and dynamic environment that awaits them. However, studies have shown that prelicensure nursing students experience difficulties applying knowledge of what is learned in didactic courses to what is practiced in the clinical setting (Jamshidi et al., 2016; Nije-Carr et al., 2017). Furthermore, of over 5,000 graduate nurses who passed the National Council Licensure Examination (NCLEX), only 23% were able to demonstrate entry-level competencies and practice readiness (Kavanaugh & Szweda, 2017). Ensuring that nursing graduates are equipped to support the current workforce's needs is an intricate yet essential feature across the curriculum of prelicensure nursing education. To optimize students' learning, there has been a call for a paradigm shift in prelicensure nursing education for nursing faculty to utilize innovative pedagogies that stimulate critical thinking and clinical decision-making in the classroom setting (Benner et al., 2010). The flipped classroom is one example of a creative approach that can bridge the gap between what is learned in the classroom setting and applied in clinical practice by cultivating the clinical judgment skills required for registered nurses to practice competently.

Bergmann and Sams define the flipped classroom as "a pedagogical approach in which direct instruction moves from the group learning space to the individual learning space, and the resulting group space is transformed into a dynamic, interactive learning environment where the educator guides students as they apply concepts and engage creatively in the subject matter" (2014, p. 1). Essentially, activities that were traditionally conducted in the classroom, such as content lectures, become activities that are completed at home, and activities that were normally assigned as homework become classroom activities (Sohrabi & Iraj, 2016). In the traditional classroom learning environment, students look to the educator to tell them what they need to know. However, the flipped classroom discourages passive learning and instead encourages self-directed learning, as the educator guides students as

they apply concepts and engage creatively in the subject matter, rather than merely delivering information (Kugler et al., 2019). As the flipped classroom environment requires students to engage in higher-order thinking, their clinical decision-making abilities are enhanced (Arca-Conteras, 2021; Yang, 2021), thus promoting readiness for professional nursing practice.

How to Effectively Implement the Flipped Classroom

The flipped classroom is comprised of three interrelated phases of learning, including pre-class, in-class, and after-class. During the pre-class phase, the student engages in independent learning activities prior to attending class that are related to the content, such as narrated or pre-recorded lectures, online videos, and readings; these activities may be followed by a quiz and/or online discussion (Youhasan et al., 2021). These pre-class activities should engage the learner in the application of the content and should encourage accountability of the student for their learning (McLean et al., 2015). Next, the in-class phase is used for applying, analyzing, and evaluating material through various modalities (Oh et al., 2017). As students are engaging in critical thinking and practicing clinical decision-making, the in-class activities result in higher levels of thinking by dedicating class time to active learning strategies. These strategies may include case studies, quizzes through audience response systems, peer discussions, and/or role-playing (Caputi, 2020; Özbay & Çınar, 2021). While most of the class time is spent using active learning strategies, many instructors conduct small bursts of lecture to clarify complex topics and summarize important points (Youhasan et al., 2021). Finally, the loop is closed with after-class activities involving reflection and follow-up discussion to clarify any remaining areas of confusion for the student (Barbour & Schuessler, 2019).

Successful implementation of the flipped classroom model requires expertise from the nursing faculty member to carefully design the appropriate instructional strategies

which are aligned with student learning outcomes, including the level of complexity appropriate for each phase, as well as considerable time and effort to effectively plan each lesson (Barbour & Schuessler, 2019). In each phase, the flipped classroom model offers the nursing faculty member an opportunity to tailor the learning process to the students' diverse learning styles and prior knowledge (Goedhart et al., 2019). It is recommended that nursing faculty members gradually implement the flipped classroom over time to build pedagogical expertise and encourage student acceptance and success (Barbour & Schuessler, 2019). The flipped classroom, being student-centric, requires increased effort and time from the student when compared to traditional learning methods. Therefore, adult learners need to understand how the flipped classroom model will benefit them and how to effectively use self-directed and metacognitive strategies for learning (Khodaei et al., 2022). The instructor should explain the benefits of the flipped classroom and coach students to effectively engage in the pre- and after-class activities.

The Benefits of the Flipped Classroom

In addition to the discipline of nursing, the flipped classroom has been implemented in other disciplines, such as mathematics, social sciences, engineering, business, and arts and humanities (Cheng et al., 2019; Hao, 2016). A meta-analysis of 174 studies concluded that the flipped classroom approach is beneficial, regardless of discipline and educational level (Strelan et al., 2020). Multiple studies have also concluded that flipped classrooms improve student confidence, motivation, and engagement (Awidi & Paynter, 2019; Busebaia & John, 2020). Furthermore, the flipped classroom has been determined to improve academic performance (Strelan et al., 2020; Li et al., 2020), student learning outcomes (van Alten et al., 2019; Cheng et al., 2019), student satisfaction (Cho & Kim, 2019; Hoover et al., 2018), and clinical performance (Kim et al., 2019; Xu et al., 2019).

Faculty Perspectives

The literature has concluded many benefits for the use of the flipped classroom in prelicensure nursing education, and this evidence of efficacy drives nursing faculty at Harford Community College (HCC) to utilize this teaching strategy to promote student success, retention, and course completion. As we value that student learning is directly influenced by the quality and quantity of student involvement and engagement, all nursing faculty members at HCC incorporate active learning in the classroom. Furthermore, 90% (n = 10) of the nursing faculty at HCC who responded to a recent survey reported using flipped classrooms in at least 75% of their classes. Faculty reported that despite the increased time and effort required to design a flipped classroom, the approach provided many benefits for student learning and success. Firstly, the faculty appreciated the increased student engagement through student discussion and collaborative learning, which has subsequently facilitated positive faculty-student relationships. Faculty also favored the results of the flipped classrooms as there is more time for higher-level learning and critical thinking for the students; however, many faculty highlight that student success relies heavily on engagement and preparation, which emphasizes the importance of effectively implementing the flipped classroom approach, including student orientation to this model. From a teaching perspective, faculty reported that the flipped classroom increases opportunities for flexibility—which also requires the faculty member to be vulnerable—as the class is no longer structured with lecture content. Lastly, faculty reported that the flipped classroom enhances formative assessment opportunities, which promotes student success.

Student Perspectives

Students' evaluations from the surveys of instruction at HCC from various nursing courses, including maternal-newborn, medical-surgical, and mental health nursing, correspond with the current literature, which concluded that students have improved satisfaction when the flipped classroom is utilized in the classroom setting.

Students reported that the flipped classroom improved the learning process and enhanced their critical thinking skills. Students appreciated the prompt feedback and real-time explanations from nursing faculty during active learning activities, which incorporated real-time, problem-solving activities and team-based learning. Students perceived an enhanced ability to understand the content and reported that their ability to retain information is enhanced when engaged in active learning strategies, such as clinical scenarios. Students also appreciated having the recorded pre-class materials for several reasons, namely that this method supported their self-directed learning and that the recorded materials were helpful to refer back to when reviewing the course content. Finally, students reported feeling more prepared for the National Council of State Boards of Nursing (NCLEX) licensure examination and for clinical practice by participating in activities promoting clinical judgment as utilized in the flipped classroom.

Conclusion

As registered nurses continue to face an ever-changing and challenging atmosphere in the health care setting, it is imperative that nursing faculty implement innovative strategies in prelicensure nursing education to enhance the students' ability to apply the core competencies needed to practice safely in their professional practice. The nursing faculty at HCC are committed to providing prelicensure nursing students with opportunities to utilize clinical judgement skills—not only in the clinical setting, but also in the classroom setting to help resolve the universal issue of the theory-practice gap. The flipped classroom is one method that can contribute to students' ability to analyze and synthesize patients' presentations and thus engage in the sound clinical judgment required of them as new graduate nurses. Conceivably, this new paradigm of teaching and learning, which is active rather than passive, will stimulate new graduate nurses' readiness to enter the nursing profession to provide safe, high-quality care to all patients.

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A Study of a Community College Course Success in 7 Weeks

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Background

Health Information Management (HIM) courses combine knowledge, skills, and abilities from domains within health care, information technology, and business management to prepare students for careers in the effective and ethical handling of medical information. These courses once conceived in traditional semester-long formats are nationally moving towards shortened, compressed designs. This trend has continued to gain heightened popularity across contemporary higher education. Compressed courses often refer to traditional courses characterized by prioritized subject matter in the form of pre-class reading, video lectures, stackable content, and multi-level assessments. According to McDonald et al. (2018), compressed courses sometimes involve fewer contact hours than traditional ones. As working students continue to enroll in higher learning, institutions are adopting compressed courses to fulfill the needs of students who experience challenges with traditional courses. Lutes and Davies (2012) found that apart from the student's ability and the nature of the course, the length of a particular course in perspective of the elapsed course hours also determines the difficulty of the course. Sloan (2017) supports this argument by indicating that most students have the mental faculties to understand the presented content. Still, with the traditional course, they lack the stamina required to complete a 15-week course when the need for increased work-balance life persists.

In this study, a traditional 15-week course was compressed into a 7-week course. This activity used the hybrid class method that combines in-person instruction and distance learning. The hybrid class method has been proven to increase students' success. Lamport and Hill (2012) notes that the hybrid approach is illustrated by increased access to learning materials, amplified flexibility with reada-heads, and enhanced instructor presence. For our research, we spent substantial time planning the content presented throughout the compressed course. We determined that it would be appropriate for students to spend half of the learning time in the class, whereas the other half is spent working online outside the traditional classroom. We determined that there were specific areas that students would do independently within the virtual learning environment, while other areas needed to be discussed during the in-person teaching. For example, it would be effective for students to conduct an online debate on an ongoing topic. However, while introducing a new process map or workflow, whiteboard teaching to be conducted during face-to-face instruction was deemed necessary. We also incorporated consistent modular layouts and guided learning pathways to ensure that students engaged and interacted with the learning content at a deeper level.

During this redesign, we did not eliminate any of the original course objectives; we could not sacrifice the expected outcomes. When juxtaposing traditional and compressed courses, students perceive that they will enjoy a lighter workload given the significant reduction in time (Lutes & Davies, 2013). However, it is essential to understand that a compressed course is equal to a traditional one. One of the main differences lies in the engagement and delivery environment, but the content and the overall coursework are the same in equal scenarios. No breadth of knowledge was compromised in this activity, and the academic rigor was not reduced in any way. Ample time was given to students to ensure they completed their assignments before the class meetings. This was meant to provide students with a broader foundation to build on more abstract content during the in-person classes. Alongside introducing real-world case studies, we committed to creating videos of recorded lectures to bolster what students learned during class time. We were keen to follow the notion that we were not simply lecturing in the class but providing an opportunity for students to apply what they were learning.

A Study of a Community College Course Success in 7-Weeks

Methods

For a notable change in student success, retention, and completion to be observed, particular methods were used. The first method utilized was case studies. This method was effective because it actively involved students in practically applying what they had learned in real-world situations. Most importantly, case studies played a pivotal role in engaging students in the reflective discussion, allowing them to practice stacked learning, problem-solving, and abstract thinking. Recent research by Mahdi, Nassar, and Almuslamani (2020) adds that the case study method enhances critical thinking among students. By coupling the case study method with discussion topics, we ensured that students were ultimately collaborative in sharing ideas and opinions, and no student was singled out. With the discussion topics, we enhanced the ability of students to *process* taught content instead of simply receiving it. The discussion topics were effective in helping students demonstrate what they learned through reflecting and thinking through their application of the course material.

We also used scenarios to ensure students were deeply immersed in the subject. Using scenario learning, we allowed students to expound on the question "What would you do?" and allowed them to visualize the challenges they would encounter in real-world situations. Most importantly, these performance-based scenarios helped us enhance the students' learning by providing feedback on the consequences of their decisions. The scenarios gave students ultimate control of their outcomes while they engaged with the subject matter. This provided them with the foundation to hone their learned skills. Cumulative research projects were another method that considerably helped students directly apply their learning. Besides skill application, mini-research projects helped students pursue their interests and dive deeper into something new. Students were given chances to apply their problem-solving

skills and challenge themselves in new ways. Lastly, we used breakout rooms or sessions to establish a compelling connection and build community between students and maintain their focus, making teaching and learning more effective. Mohamed (2021) also investigated the impact of breakout rooms and found that they improved the students' performance. We implemented this type of cooperative learning by using breakout sessions, which allowed us to assess students—individually and as a group—more closely and in real time unobtrusively.

Results and Discussion

We must emphasize that we did not take the 15-week course and simply squeeze it into a 7-week format. Instead, information was heavily prioritized based on its importance and impact. As shown in Figure 1, our methods were carefully planned and organized to establish a stackable learning framework. We changed our process and modality for presenting the information, but all other aspects were kept intact, and we ensured students would obtain the same learning outcomes if kept in a traditional course setting. We anticipated that students would have the same achievements or better as those within the traditional course once we measured their outcomes and earned grades.

Benchmarking the changes to be experienced after redesigning the 15-week course for a 7-week format necessitated the use of a specific course. We used HIM 1103: Introduction to Health Information Management as a prototype in this study. The class was evaluated two times—before the 7-week redesign and after. The evaluation before the 7-week redesign indicates that the 15-week course had weekly quizzes, weekly homework assignments, midterm and final exams, and a research project. Also, in the 15-week course, we had weekly classes. Additionally, we noted that many students did not attend

the classes. Even if they attended, they avoided engaging in various activities. For example, many students did not watch the mini-lecture videos before class. In the 15-week course, classes were scheduled for three hours. Consequently, most students were not engaged and active during the lesson time. We also noted that final projects were typically daunting in the 15-week course. The research presented was undeveloped and seemingly a reflection of the textbook. Even though students were given the project at the start of the semester, they failed to work on it until its deadline was very close. This made students present rushed work, exacerbated by the length of time when the information presented in weeks 1 and 2 needed to be recalled months later in weeks 14 and 15.

After we redesigned the HIM 1103 class, several changes were made. First, the compressed 7-week course consisted of weekly quizzes, in-class knowledge-building active learning segments, a scaffolded research project, and a final exam. Students were expected to submit their work in milestones with the scaffolded research project encapsulating their learning. This was highlighted by discussing the final project beginning on day 1 of the course, ensuring that each student had ample time to do and revise their work accordingly. The weekly homework was done in a textbook companion third-party system, available to them in desktop and mobile device formats 24 hours a day, and each student was awarded participation points. With the new 7-week course, students were to meet in class twice every week for 1.5 hours. We also ensured that the research projects included a presentation and were woven through the class to facilitate students getting feedback from faculty and their peers. Students worked on the projects in chunks every week. The procedure for working on the projects was outlined first, followed by evidence sharing and a rough draft, small group discussion, and feedback. With the new 7-week course, we found students were deeply engaged in the class. They showed unprecedented eagerness and readiness to participate brought

on by a 7-week "sense of urgency," unlike in the traditional 15-week course where students were not fully engaged in the first couple of weeks.

Lack of time for students to become comfortable with the topic is one of the key hurdles in shortening a course like this. There is less time for students to study and comprehend the material because the course is compressed. As a result, students may feel overwhelmed and will struggle to grasp the subject matter. Also, because students have less time to finish the course, there is a bigger emphasis on the caliber of their work. For students, this can cause a great deal of stress and anxiety. This is why the stackable learning shown in Figure 1 was so important.

The methods used in this study also addressed the insufficient time for assessment reflection and limited time for higher-order thought. A shortened course may offer less time for instructors to review students' work and offer feedback. This could make students feel defeated and prevent them from deepening their comprehension of the subject. Finally, the condensed course may not give students enough time to examine and research the subject fully. Students have less time to go into the content and learn more about it. This may make students feel they are not understanding the content completely and missing out on important knowledge.

Conclusion

Regarding transitioning to a 7-week course structure, we served as change champions who positively impacted students and other faculty. This study underlined that ambiguity in the syllabus is harmful and that students are inevitably uncertain when deadlines are unclear. Despite the study's success, not everything went as expected, and it was not flawless or infallible. Although this research is encouraging, practitioners should consider that trying to lecture and generate content week after week prevents one from focusing exclusively on aspects of student success and process improvement.

Moreover, practitioners should be cautioned against thinking that putting the 15-week curriculum in a 7-week structure is a workable answer. They should know that not everyone will respond positively to our strategy and approach. Yet, some of the findings might be applicable in different contexts, while others might not. Faculty should not consider the 15-week course's 7-week format as the final version because more revisions will probably be required. Agile course development is essential, and adjustments must be made in light of acquired knowledge. After completing our research, we've made a few minor tweaks at the end of each term the course has been offered to ensure that the assessment's effectiveness was proper for reaching the desired goal and rigor.

The same learning aims and grade distributions were successfully achieved by redesigning a 15-week course into a 7-week structure. The study's techniques, which included using case studies, hypothetical situations, and mini-research projects, were successful in engaging students and assisting them in applying what they had learned. The 7-week compressed course delivered a more concentrated and intensive learning experience by incorporating weekly quizzes, in-class knowledge-building active learning parts, a scaffolded research project, and a final exam. The success of this study demonstrates the value of having clear expectations and the necessity of developing agile courses and making changes in response to lessons learned. In the future, further research will need to be done to see whether this strategy is helpful for additional subjects and courses. Additionally, the study must determine how well this strategy works with various student demographics, including those with various learning preferences and histories. Through deeper study, we can learn more about successful compressed course best practices and how these courses affect student performance.

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Remote Chemistry Using Kits: Helping Our Online Chemistry Students Develop the Laboratory Skills They Need

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Chemistry is inherently a "hands-on" science, especially as students learn the basics in their General Chemistry courses. There are 3D models that help students understand the shapes of molecules; there are colors and smells that help students identify reactions, and there are tactile lab skills that help students learn to work with chemicals, labware, and instruments. The COVID-19 pandemic has challenged us to continue giving students these types of learning experiences without in-person classes. A review of the research on the efficacy of online chemistry laboratory courses concludes that these courses can be effective.[1]

With regards to the laboratory experiences, we have developed a laboratory kit of chemistry equipment for students of General Chemistry I (GCI) at Prince George's Community College to use at home. This kit (Figure 1A) includes the equipment necessary to complete six core lab experiments commonly completed during GCI at many colleges and a course-based undergraduate research experience (CURE) of our design. The goals of developing this kit and these experiments were (i) to engage students during online instruction, (ii) to provide practical and transferable skills to our students, (iii) to replicate hands-on tactile lab skills learned during in-person labs, (iv) to keep the cost of the kit relatively low, and (v) to leverage typical household consumer goods when possible. Figure 1B shows the household products also necessary to complete the labs.

Figure 1: Contents of the lab kit: A. chemical equipment. B. household products.

These six experiments teach 46 skills that are also taught during in-person labs. These skills include procedures and calculations, both important parts of the lab experience. Examples of procedural skills include calibration, preparing a solution of known concentration, titration, and coffee cup calorimetry to determine the heat of the fusion of water. Examples of calculation skills include calculating the average, standard deviation, percent error, graphing by hand, graphing using graphing software such as Excel, error propagation, identifying a potential outlier using a q-test, and keeping track of significant figures throughout calculations.

Because these labs were developed to be taught for an online asynchronous course, many of the procedures and skills have accompanying video tutorials. These tutorials provide step-by-step guidance that accompanies the detailed written procedures that are also given to students. Video tutorials were produced for any skills that we might have demonstrated during an in-person lab.

Students turned in lab reports for each experiment, similar to in-person labs. These reports were submitted via the learning management system (LMS) instead of a physical copy of a lab report. For submitting data, students completed Google Sheets spreadsheets, downloaded them as Excel files, and submitted the Excel files via the LMS (Figure 2 shows one of these spreadsheets). To aid in grading, we developed Excel "calculation checker" spreadsheets so that we could cut and paste each student's data into the "calculation checker" to quickly check students' calculations. Students also submitted pictures of specific steps in each experiment and a PDF of sample calculations.

Name:	
Instructor Name:	William Miller

Table 1: Part A – Using a 3.0 mL Plastic Pipette to Measure Volume

Data:	Trial 1	Trial 2	Trial 3
Mass of Beaker (g)	24.65 g	Leave Blank.	Leave Blank.
Temp of Water (°F)	17.1 °C	Leave Blank.	Leave Blank.
Mass of Beaker + Water (	26.70 g	28.72 g	30.75 g
Mass of Water (g)	2.05 g	2.02 g	2.03 g
Volume of Water (mL)	2	2	2
Calculations Below:			
Density of Water	1.025 g/mL	1.01 g/mL	1.015 g/mL

*Mass of Water for Trial 2 = (Mass of Beaker + Water for Trial 2) – (Mass of Beaker

Table 2: Part B – Using a Graduated Cylinder to Measure Volume

Data:	Trial 1	Trial 2	Trial 3
Mass of Grad Cyl (g)	12.23 g	Leave Blank.	Leave Blank.
Temp of Water (°F)	17.0 °C	Leave Blank.	Leave Blank.
Mass of Grad Cyl + Water	31.84 g	32.00 g	32.11 g
Mass of Water (g)	19.61 g	19.77 g	19.88 g
Volume of Water (mL)	20	20	20
Calculations Below:			
Density of Water	0.9805 g/mL	0.9885 g/mL	0.994 g/mL

Table 3: Part C – Using a Beaker to Measure Volume

Data:	Trial 1	Trial 2	Trial 3
Mass of Beaker (g)	11.00 g	Leave Blank.	Leave Blank.
Temp of Water (°F)	17.0 °C	Leave Blank.	Leave Blank.
Mass of Beaker + Water (	28.98 g	29.59 g	30.66 g
Mass of Water (g)	17.98 g	18.59 g	19.66 g
Volume of Water (mL)	2.0 x 10¹	2.0 x 10¹	2.0 x 10¹
Calculations Below:			
Density of Water	0.899 g/mL	0.9295 g/mL	0.983 g/mL

Figure 2: An Excel results page submitted by a student from one of the experiments.

Approximately 200 students have completed these labs each semester during the fall 2020, spring 2021, and fall 2021 semesters. Each semester, students completed surveys before and after completing the labs to self-report their level of comfort with the 46 lab skills. We used a Likert-type scale starting from 1 = "I have no knowledge and/or skill about how to do this." to 3 = "I have some of the knowledge and/or skill about how to do this." and finally to 5 = "I have all of the knowledge and/or skill about how to do this." Students reported an average score of 2.9 before taking the labs and a score of 4.4 after completing the labs, an average increase of 1.5 units. In more complex skills such as "graphically determine the equivalence point of a pH titration graph" and "calculate the heat of fusion of water," students reported improvements of 2.3 and 2.7, respectively. At least in the minds of the students, there have been significant improvements in learning these skills.

During the fall 2021 semester, we started supplementing the six core lab experiments with a CURE. In this version of CURE, students complete a guided-literature search, complete a control experiment in which they compare their results to literature values, and then complete a similar experiment on a material of their choice (the unknown) for which there are no literature values. Finally, they present their work by producing a video presentation using PowerPoint (or a similar program) summarizing their results.

The CURE experiment is entitled "The Use of a Hand-held Refractometer to Measure the Refractive Indices of Solutions of Household Products," a difficult title for a relatively simple experiment for which the skills necessary to complete the experiment were taught in the six core labs. To be clear, the CURE was also completed by students remotely. Anecdotally, student response has been very positive. Figure 3 shows a student's results for an unknown material, baking soda dissolved in water.

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Remote Chemistry Using Kits: Helping Our Online Chemistry Students Develop the Laboratory Skills They Need
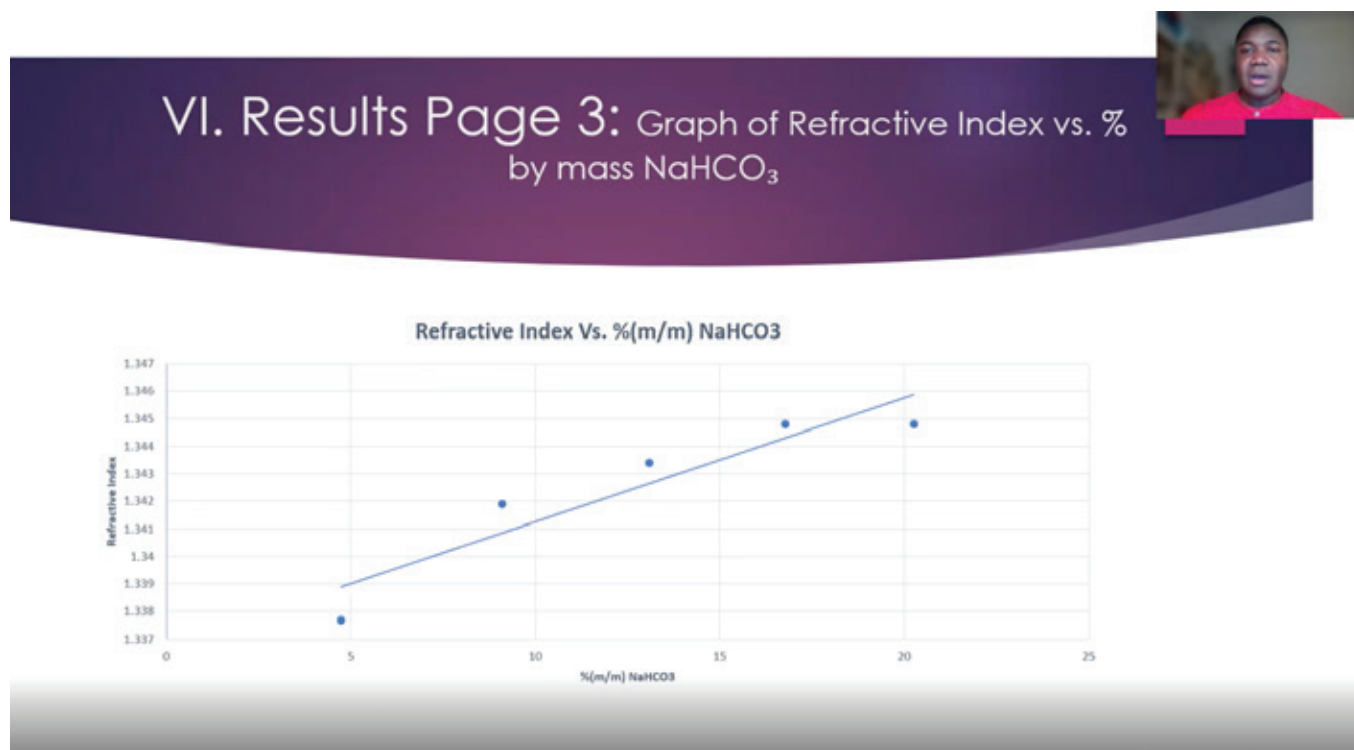

Figure 3: A page from a student's final presentation for the CURE experiment

In conclusion, we have made significant progress towards developing a set of remote laboratory experiments for General Chemistry I. These experiments teach 46 skills including both procedures and calculations. Students self-report significant improvements in learning these skills. Progress continues in developing and assessing the self-reported student learning for a CURE.

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Converting a Literature Course to OER and Online Materials: An Experimental Experience

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During spring 2021, my department chair assigned me to teach our British Literature 1 course for fall 2021. Of course, I accepted the opportunity. This course covers my major and minor fields of study for my graduate and post-graduate experience: Old and Middle English languages and literature, and Shakespearean literature. In prior semesters, I taught this course using different anthologies (I am picky about the translation of *Beowulf*, and it is hard to find a good translation that keeps the feeling of the poem and is loyal to the number of lines; some lines are missing because the only extant manuscript was damaged by fire). As I began preparing my materials, I discovered that the anthology I had been using for the past many years was no longer in print. And thus, the dilemma: Should I switch to a different anthology with a less-than-acceptable translation of *Beowulf* or convert the course to open educational resources (OER) and open access (OA) online materials? I chose to convert to OER and OA knowing full well the challenges of finding usable sources without violating copyright laws. While OER and OA materials have benefits — such as low cost and ease of access — they do not work for all courses, such as those where relevant content is protected by copyrights.

Adopting, adapting, or creating – or simply finding – OER or online resources for a literature class is challenging, especially for contemporary literature, including translations of "old" literature, such as those works written in Old English (a.k.a., Anglo Saxon). Most people cannot read Old English. It is, essentially, a foreign language in the Germanic branch of the Indo-European language tree. To read Old English today, students would either need to learn the language or read it in translation. Yet, many current translations are protected by copyright. Integrating OA refers to using "free, unrestricted online access to educational material, including but not limited to research outputs such as journal articles and books. OA content is open to all, with no access fees" (Northland Pioneer College, 2021). Examples of open-access materials are streaming videos, media, e-books, and more. According to UNESCO (n.d.), open-access content is "freely accessible, at no cost to the reader, via the internet or otherwise." The sense is that OER can, depending on the license, be adapted, while OA cannot; they are available for reading and distributing, without cost.

But before I take you on a tour of my experience converting my course to OER and online materials, let us consider why OERs are a hot topic today.

Most of us know what OER resources are. According to *The Wikieducator OER Handbook* (2010), "The term 'Open Educational Resource(s)' (OER) refers to educational resources (lesson plans, quizzes, syllabi, instructional modules, simulations, etc.) that are freely available for use, reuse, adaptation, and sharing." UNESCO (2012) noted OER "are teaching, learning and research materials in any medium – digital or otherwise – that reside in the public domain or have been released under an open license that permits no-cost access, use, adaptation, and redistribution by others with no or limited restrictions." OER includes "learning content, software tools to develop, use, and distribute content, and implementation resources such as open licenses" (OECD, 2007, p. 10). OER covers not only the content, but how the content is created, distributed, and implemented.

OER and OA materials have many benefits. Some key benefits are affordability, accessibility, and flexibility; these have the potential to improve student achievement and higher final grades.

Affordability. Simply, students do not have to pay for textbooks or other course materials. The U.S. Bureau of Labor Statistics shows the problem (see Figure 1). Textbook costs, as many of us know, are soaring out of control. (Only through haggling with textbook reps can we get remotely reasonable costs, but then college bookstores must include their markups.)

This data shows an 88 percent increase in textbook prices from 2006 to 2016, and that increase continues. We know from experience that many of our students simply do not buy the textbook(s) for our classes because they cannot

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afford them. As a result, students will either fail or drop the course, while some might use a book on reserve at the library, borrow or share a classmate's book or resort to stealing a book, or cheating. A survey of students by Florida Virtual Campus (2012) demonstrates the issues: 65 percent of students do not purchase textbooks due to costs, while 31 percent do not register for a course due to textbook costs. By using OER and OA materials, we can eliminate this barrier, allowing students to have the necessary resources for success in our classes.

Accessibility. How often have you had students say, "I don't have the textbook?" Often, the response is, "I'm waiting for my paycheck," or "I'm waiting for my financial aid." In addition to removing the cost barrier, OER and OA materials can be made available to students on the first day of class, via the learning management system (LMS), such as Blackboard or Canvas. Students do not need an access code; all students can access the course materials.

Flexibility. Depending on the license applied to the OER, faculty have flexibility in how they use OER. They can simply use the resource as is (adopt) or they can modify it in various ways, including rearranging the content or removing content and adding content from other OER (adapt). Faculty can even create their own OER from scratch. This flexibility gives faculty members greater control over how they deliver the content to their students. Of course, to an extent, I do this with my textbooks. I simply tell students what chapters to read; this is often not in the order the chapters appear in the textbook. I will even tell students what sections of a chapter to read. But the flexibility of an OER allows me, if I choose, to eliminate unnecessary content, which can help avoid confusing students. For example, I might say something in class that contradicts what the textbook says. Students will read the textbook and do something I told them not to do on an assignment. Then, they might come to me and say, "But the textbook says…" I must then explain that I covered this in class and that the textbook is not always right.

Flaws. Despite the potential benefits of OER and OA materials, the practice can be flawed. I recently had a conversation with a student who was taking a math class that used an OER textbook. The student was upset and frustrated because the textbook was filled with many errors, page after page. These errors were in the examples and exercises. (The student confirmed the errors via other means, including math tutors and online resources.) The student expressed frustration because even though the book was at no cost, it was of significantly lower quality than a previously used bound textbook. In some cases, "free" does not mean "better."

My OER Experience. At the end of spring 2021, I began to build my syllabus for my British Literature 1 course. As I previously noted, I decided to use OER and OA materials. But I was worried.

A major challenge when dealing with literature, in terms of OER or OA materials, is copyright. Much contemporary literature is copyright protected. If it is available online, it is often pirated, and its use would be unethical. The same is true of older literature that is translated. British Literature 1 starts at the beginning of "English" literature. The quotation marks are intentional. As mentioned previously, "Old English" is a foreign language. Here is an example from the first stanza of the Anglo-Saxon poem, "The Seafarer":

Mæg ic be me sylfum   soðgied wrecan,
siþas secgan,   hu ic geswincdagum
earfoðhwile   oft þrowade,
bitre breostceare   gebiden hæbbe,

For your benefit, here is the (my) translation:

About myself I may   recite a true song,
tell experiences,   how days of toil
and times of hardship   I often suffered,
bitter breast-cares   I have endured,

My chief concern in moving from a publisher anthology to an OER textbook was if I could find all the literature I use in my course. The textbook I selected had a good selection of cultural, biographical, and historical information to provide the necessary background, but it only had about

half of the literature I used. This is the mixed bag that describes OER textbooks. We often find these materials lacking key elements, and this presents challenges in adopting or adapting the OER. If we adopt it as is, we then must find other sources to fill the gaps. If we choose to adapt it, we must find other sources to fill the gaps, and then we must integrate it into the OER and have it flow smoothly. I chose the textbook and started searching for materials to fill the gaps. Fortunately, much of the missing literature is available on three websites (Luminarium.org, Project Gutenberg, and Poetry Foundation). I was able to find a decent translation of *Beowulf* that would be accessible to students (language-wise) and still hold true to the form and line length of the original manuscript. For a few remaining pieces not found on these sites, I provided my translations, such as "The Seafarer," or found them on individual sites. Overall, I was able to provide my students access to all the literature I required.

A few spring semesters past, I was scheduled to teach our Survey of Science Fiction class. While early British literature is my major field of study, science fiction literature is my passion. About a week before the start of the semester, the bookstore informed me that the anthology I used was no longer in print and that they did not have enough copies for my class. Most of this literature is copyright protected. While I found about half of the short stories online, the other half was not available. For this one time only, I did what I could to make the rest of the literature available. Using academic license, I photocopied several key stories and cut other ones from the reading list. Coupled with two short novels, I provided the students with (barely) enough reading to demonstrate the literary concepts I cover in the course.

In this instance, I did not have time to look for an OER textbook of science fiction literature. After the semester ended, I began my search. My search, though, was futile. I could find only a single OER textbook, and it had only one story that I used. To use this resource, I would have to rebuild my entire reading list. As I began to look through the table of contents, I realized that the task would be daunting. I would have to read everything to find the

stories that adequately addressed the literary concepts I teach in the course. Perhaps, this coming summer, I will have greater success. My experience with my British Literature course, using OER and OA materials, was ultimately rewarding for me. Several students also expressed satisfaction with the course materials via email and an end-of-semester discussion board, noting that not only did the materials save them money, but they were also easier to access. Perhaps the same will be true for my science fiction literature course.

In the end, I successfully converted my British Literature 1 course to using OER and OA materials. I was able to find everything I needed, from the literary works to the biographical pieces to the historical notes. But while some people, including administrators and some professors, believe OER is the wave of the future, some fields—such as contemporary literature—will find it challenging, though possible, to use OER and OA materials.

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My Epiphany: How Utilizing Social-Emotional and Metacognitive Learning Broadened My Teaching Horizons

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Excitement!

Most of us relate the word "excitement" to a heightened sense of emotion, fun, or awareness. Excitement happens when I introduce the concepts of social-emotional learning (SEL) and metacognitive awareness to my students preparing for the Scholastic Aptitude Test (SAT). SEL involves problem-solving, emotional regulation, self-awareness, and empathy. Metacognitive familiarity references our awareness of and control over our learning and enhances our SEL.

During the day, I am proud to serve as a middle school Special Educator for students who have severe profound disabilities. Most are non-verbal and have an average cognitive ability below pre-k level. They amaze me each day by expressing their humor, perseverance, and progress with functional skills. During the evening, I am proud to serve as an Adjunct Instructor, one evening a week, teaching non-credit Reading/Writing SAT prep skills at a community college. My SAT students are generally high school juniors and seniors preparing for their next educational milestone of attending college. This portion of the SAT addresses all content areas by way of evidence-based reading, reading comprehension, vocabulary, grammar, command of evidence, and expression of ideas. It includes many narrative passages focusing on science, social studies, technology, fine arts, and literature.

The first night of class can be stressful as most of the students have not been on the college campus before, let alone in an adult classroom, with no hallway bells, no hall monitors, and no overhead announcements. They are now in an adult learning environment with adult-height tables, office chairs, an interactive whiteboard, and a very excited instructor welcoming them to "Grab a snack and sit where you like!" Yes, that is part of my excitement – placing snacks next to the sign-in sheet as a hospitable gesture. They are now stepping into an adult world with the purpose to better themselves without a state mandate. Of course, they are reminded to clean their desk area and push their chair in after class so that the room will be ready for the next morning's classes. Also, students are asked to quietly exit the room when they need a bathroom break and to gracefully enter the room if they are late for class. These are basic rules to follow employing self-regulation and help prepare students for their post-secondary experiences.

I always look forward to teaching this course, and I thrive on creating student-centered lessons rather than exhaustive and boring lectures. But I haven't always seen excitement in the faces and body language of the students. As I reflected after each class, I asked myself how the lesson could be or should be modified, differentiated, and upgraded to elicit more engagement and emotion in support of meeting and exceeding our objectives. One evening, it hit me: make it personal! Relate each lesson to each students' college major and personal career goal. Engage them in dialogue and let them guide the discussion. Socrates created a pedagogical revolution when he introduced inquiry-based learning!

After reviewing the syllabus, we dive into our first lesson about memory and brain function. Pertinent for SAT preparation, students learn how their brain processes, stores, and retrieves information. This metacognitive familiarity guides them toward more effective study skills and test-taking strategies. From an SEL perspective, I want students to ask themselves what they are going to do with the new knowledge. As each question is answered, I consistently follow with "Who agrees?" and "How does this relate to you taking the SAT?" Positive reinforcement is

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provided after each effort, and I detect a few smiles where dullness previously existed. This is when my excitement begins to build! I am not teaching them *how* they think and learn, but rather guiding and facilitating their *own* discovery. I want them to understand how their metacognitive skills relate to not only the SAT process but also to job interviews, socializing with peers, and future performance in their desired profession.

The Dept. of Psychology and Sociology at Texas A&M University published a 2019 study that suggests SEL and metacognitive familiarity or awareness can greatly affect student SAT scores:

Indeed, research suggests that complex measures of processing and storage, like working memory measures, are much stronger predictors of SAT scores than are traditional short-term memory storage-only measures. Additionally, knowledge integration, which is an individual's ability to integrate prior knowledge with new text-based information, is also a strong predictor of SAT, SAT-V, and SAT-M scores.

Research also suggests that several social/personality factors predict SAT scores. For instance, test anxiety, which is typically characterized as a fear of failing that precedes an upcoming examination, routinely accounts for 10 to 17% of the variance in SAT scores. Performance-avoidance, which is characterized as avoiding undesired outcomes on examinations, is inversely related to performances on exams and typically accounts for 9 to 15% of the variance in SAT scores. Academic self-efficacy, which is characterized as one's belief in one's ability to succeed, is also related to ACT/SAT scores.

The application of social-emotional awareness and metacognitive familiarity guides my students to think higher and broader. They begin to understand their "why." Their SAT journey becomes a bridge to reaching their next milestone. Best of all, my enthusiasm is heightened when I review their post-course survey and read their comments. How gratifying it is to read "Thank you, Ms. Pam, for helping me see that I can do this," and "No other teacher took the time to support me and tell me I am smart." Based on those reviews, my "why" becomes neon and I can't wait to begin the new semester.

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Coaching as a Technique of Instruction for Student College Learning

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We have all heard the term "Coach" used in some capacity or another, whether it is related to a sport, a team, or even in the professional realm of executives and leaders. But specifically, what about in education "For Student College Learning?" Are there strategies and techniques from the Professional Coaching industry that can be used to serve the needs of the students, support student learning, and be implemented into delivery modalities that support and allow the students to achieve a sense of mastery? The answer to these questions, along with others, may reside in the approach that is used to engage (initially) with students and when engaging (continuously) with students.

Coaching is defined as "Partnering with a person in a thought-provoking and creative process that inspires them to maximize their personal and professional potential" (Boet, et al., 2023). Coaching is not counseling, therapy, or telling—coaching is about discovery and exploration. Thus, based on this definition, there are four categories revealed that are of importance and have relevancy: first is the partnering, second is the thought-provoking process, third is the creative process, and fourth is the maximization of potential. Each of these categories being inclusive of one another can be used to support the end results and expectation for student college learning.

There is a multiplicity of coaching models that can and are used within the coaching industry. The type of model used will vary based on the coach, their area of expertise, as well as the client and the desired growth, development, and achievement. For student college learning, the four categories mentioned can serve and be used as a model to support the student, their learning, and the instruction or college. Each of the categories has its unique purpose and connection that when used in accordance can support the student in being successful.

Partnering is an agreed-upon relationship that exists between the Coach and the client. For student college learning, this would be the agreement between the

professor and the student. This can also be an agreement between the professor and the class (i.e., group), where the class becomes the group. However, a syllabus is used in many instances as the written agreement from the professor to the student, effectively becoming a one-way communication method. Partnering allows the student and/or class to have a voice and input, creating two-way collaboration. Thus, professors and students can collectively determine what that relationship will look like at the onset. Being clear from the beginning will help all participants know their perspective responsibilities and what is expected of them.

The thought-provoking process will be initiated by the one providing the instruction (i.e., an instructor, teacher, or professor.). The process will consist of many things, starting with a good listener. Being a good listener includes not just hearing, but listening and digesting what is being said by the student(s) to provide a higher level of curiosity toward understanding where the student is to their desired goal. For example, when a student gets an incorrect answer, what part of the answer is correct so that moving forward doesn't always mean starting completely over? Also, what association can be made to the student or group's interest to deepen understanding?

The creative process will stem from not only what is being heard, but also what is being said within the collaboration of those involved. This collaboration occurs within both a one-on-one (professor/student) relationship as well as within a collective group (i.e., class section) relationship. This process will determine the "What's next?" phase. This phase may be comprised of deeper open-ended questions for increased understanding, sharing, and reflecting for transparency. Examples of questions for increased understanding could be, "How does 'X' relate to 'Y'?" or "How can you reframe this?" and "What opportunity is present right now?" Of course, the time dedicated to questions is entirely up to the professor. However, the results are usually positive when

professors take the appropriate time to explore deeper. In the case of asynchronous courses, students can have an option of three to four banks of questions to answer that relate to the subject. Professors can also use questions that have come up often in past classes.

Maximizing potential is the capstone. This is where the three previous categories of partnering, thought-provoking, and creative processes all come together. In this category, the student(s) will begin to expand, going beyond the surface of what's currently present in their understanding of the course content and even themselves. They will start to connect the dots creating possible associations. These dots and associations may be that of past or current realizations and future desires and aspirations. Things will begin the reveal themselves and become clearer.

So what does all this mean, and how can educators use coaching to support student college learning? Firstly, professors can become "coach-like." For instance, instead of telling everything and being the expert, allow the learner—the student—to be the source of the information and the authority over what they know, what they need to learn, and how they can apply their knowledge. This can become part of the student's connection to the content being learned. Whereas governing bodies oversee and determine the specific outcomes of courses, professors can use the outcomes as incentives to ask questions that help align the student to the outcomes.

Secondly, although educators have itineraries and agendas to follow, allowing students to participate in creating their own agendas for learning the subject supports this partnership. Creating their agenda can be based on the outline, objectives, and expectations of the class, course, or program. We all come with an agenda. Therefore, when students are intricately involved in creating their agenda for college learning in a specific course, they can integrate what's currently present with what educators may not be aware of.

Lastly, being curious and asking the right questions can be used to support student college learning. It can be the difference between perceived uninterest and dynamic learning. Furthermore, these techniques can be a professor's secret sauce to having students open up about what they may not realize they already know. When questions are more open-ended than closed-ended, students can go deeper in their thinking to view information through different lenses. Additionally, posing students with open-ended questions instead of simply lecturing the information opens opportunities for increased self-exploration, association, and personal connection (Su, 2014).

When Coaching as a Technique of Instruction for Student College Learning is implemented, it can open an array of possibilities that reduce barriers and remove limitations, potentially increasing student insight and discovery of the unknown. For educators, utilizing coaching is an opportunity to adjust lectures into inquisitive inquiries using powerful questions and how-tos that can support the student in mapping out their journey through autonomy, competence, and relatedness.

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Using Metaphor for Teaching Qualitative Data Analysis: Marie Kondo

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For students, data analysis can be an elusive topic, although a necessary aspect of the scientific process. This article intends to assist those that teach students qualitative data analysis in the social sciences by providing an additional teaching tool: metaphors for qualitative data analysis.

Data analysis is the process of organizing and interpreting data (Crabtree & Miller, 1999). Qualitative research often involves data sets with large amounts of textual material including interview transcripts, field notes, stories, and narratives (Crabtree & Miller, 1999).

Why Qualitative Data Analysis is Difficult for Students to Learn

One reason students may struggle with data analysis is the lack of training they receive. While courses may offer in-depth training in research methodologies and theory, classes and textbooks typically do not devote time and space to other aspects of the research process such as data analysis. Students often feel anxious, overwhelmed, and uncertain when learning qualitative research methods, and they describe what they are learning as "mysterious" (Cooper et al., 2012, p. 8).

Another reason a student may struggle with data analysis in qualitative research is because of the content of scholarly research articles. Due to length restraints in word count for reporting data analysis, descriptions of the data analysis process are often limited in research literature when compared with other sections such as literature review, theory, or methodology. While students can use introduction and methods sections from journal articles as guidelines when writing their research reports, there is a lack of transparent data analysis to refer to in journal articles.

Marie Kondo

Marie Kondo is a professional "tidying expert," most known for her book *The Life-Changing Magic of Tidying Up.* Kondo's KonMari Method advocates for organizing by category and by selecting items to keep based on the emotional response of joy (Kondo, 2014). Marie Kondo's methods can be used as a metaphor for teaching students about the process of data analysis, especially those skills that are most difficult to acquire.

Thinking about qualitative data analysis

One aspect of qualitative research that is difficult for students to understand is the changing nature of the research question as the study progresses. In qualitative research, an original research question is often vague but is refined and reformulated throughout the research process (Hancock et al., 2009). Data analysis often leads to this change, with more information leading to refining the research question. Marie Kondo's methods are often used for people trying to declutter or organize, but the organizational expert challenges people to find a way of having functional spaces that include objects of joy. In this way, Kondo changes the question from "How can this home be more organized?" to "How can this home be more functional?" or "How can this space bring me more positive energy?" The functional component cannot be answered without a detailed examination of a person's belongings and spaces. Similarly, while an original research question may lead a student to a topic, a data source, and data collection, the analysis may lead to a more useful research question that evolves after the start of a project.

Another difficult aspect of qualitative data analysis is the ability to see the whole and move back and forth between small units of analysis or data, and the larger whole. Deductive and inductive approaches have differences in

their process, but all qualitative research aims to provide results and findings that reflect the topic of interest. One of Marie Kondo's methods for tidying clothing involves taking all objects out of a closet or dresser. Each item is considered for keeping before being reorganized and placed back in a location. In this way, all objects are studied, although where they end up differs. In qualitative research, the use of the term "corpus" reflects similar attention to the whole while considering the pieces. Corpus refers to the entirety of a data set, although data analysis often focuses on finding themes and patterns within the corpus. Tidying clothing by removing them and seeing them all together is a useful metaphor for attending to the whole and parts of qualitative research data analysis.

With a lack of guidance for data analysis offered by research articles, students are left with vague under-standings of what tools can assist their data analysis. Coding can take the form of manual coding (e.g., note-cards, a matrix, highlighting text) or can use one of the many coding software programs. Additionally, using visuals can be a helpful tool for students as they move into data analysis. The creation of codebooks in qualita-tive research (Saldaña, 2021) could be considered equiva-lent to a specific folding technique, both informing the structure for organizing elements. Additionally, in qualitative research, visuals can be helpful for organizing data. Students can benefit from drawing tables, figures, or diagrams. These could serve for personal use in data analysis, but they might also be useful in reporting data.

Class Activity

This metaphor can be adapted for use when teaching qualitative data analysis. For example, many students are nervous to begin analyzing their data, and people are often weary of cleaning out a junk drawer. An interesting activity for a class could involve dumping a pile of "junk drawer" objects and having students organize them. While at first seemingly mundane, students will be able to recognize key components of data analysis. Some post-activity questions could include:

1. What patterns or themes did you find in the "junk drawer" objects?

2. What methods did you explore or think of for organizing? (Size, color, function, etc.)

3. Did you choose to discard objects? Why?

4. What was your final organizational plan? Why this plan and not another?

5. Did your organization change over time or did issues arise midway through?

6. Were there groups of objects? What about single objects?

7. What connections do you see between organizing a "junk drawer" and analyzing your data set?

Next, instructors can lead students from the metaphor through examples in research. Sample research articles can be a useful bridge. Articles with data examples, such as themes or categories exemplified with data extracts such as participant quotes from interviews, can be especially useful for students in connecting concepts from the activity.

Finally, students can practice their data analysis. This could be with a data set provided by the instructor or the student's data collected for a project or assignment. Another discussion after an exercise in data analysis can be a valuable opportunity to share experiences, thoughts, and findings.

Conclusion

An active learning experience can provide a useful metaphor for students new to qualitative data analysis. While lectures and readings can provide foundational information, experiential activities can provide exercise in the application of knowledge (Meyers & Jones, 1993).

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Offering Students Assignment Product Options

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Introduction

An Introduction to Exercise Science course-specific applied research project was conducted from fall 2021 through fall 2022. The project aimed to improve student completion and performance on an end-of-semester assignment that promoted exercise science career exploration. Prior to COVID-19, students completed the assignment by observing and interviewing an exercise science professional in the field and writing a reflective essay. However, that approach no longer worked with the health restrictions in many physical therapy, athletic training, and fitness settings. Guest observers were not permitted, and social distancing requirements made it difficult for students to shadow and communicate in person with an exercise science professional.

To accommodate the new restrictions, email and phone contact replaced the in-person visits during the fall of 2020 when the course continued to be offered asynchronously. Although this provided flexibility in scheduling, many students reported that exercise professionals lacked time to provide extensive details or did not reply to their inquiries. Therefore, students were tasked with investigating an exercise profession using credible websites and journal articles instead of personal interviews. Based on student feedback, these reports were less impactful when compared to comments from previous semesters, where students expressed great value in seeing and hearing from someone first-hand in an exercise science field. Before COVID-19, student course evaluation responses indicated that the observation and interview-based assignment was one of the course's most beneficial and practical academic exercises. However, in fall 2020 and spring 2021, no students commented that the research-based assignment was a "most helpful" assignment.

Grade data for the fall 2020 asynchronous section revealed that of the 80% of students who completed the profession exploration assignment, only 55% earned a grade of C or higher. In spring 2021, 81% of students submitted the assignment, with 75% achieving at least a C. A confounding factor when reviewing the grade data is that 50% of the students enrolled in the online course as an elective, although it was designed to be an exercise science program-specific transfer course. With all of this in mind, this project aimed to determine whether allowing students options for completing the profession exploration assignment improved student completion and performance.

Related Literature

According to Weimer (2014), there are several benefits when students are provided choices for completing assignments, including increased motivation, autonomy, and maturity. If an assignment seems appealing, students will be more motivated to complete it and will likely spend more time on it. More in-depth, independent learning is usually a result. Students feel empowered to use their preferred skills when instructional guidance is flexible. However, for student success and fairness, the instructor must first clearly identify the desired learning outcomes for the assignment.

Booth et al. (2018) emphasized that a universal design for learning (UDL) instructional approach centers around three principles: multiple means of engagement, multiple means of representation, and multiple means of action and expression. One goal when using UDL is to address students' learning styles through challenging but flexible instruction that offers varied methods for action and expression. When determining appropriate means of action and expression, Booth et al. (2018) recommended that instructors consider activities that excite them when teaching. Likewise, they should evaluate those they and their students find unstimulating. Instructors should replace a single discouraging assignment with one that is more invigorating. For example, writing a research paper might be replaced with narrating a PowerPoint presentation, designing a website, or creating a newsletter or blog post. The goal is to start small and gradually add more ideas to keep the UDL framework manageable, so the faculty and students stay excited about learning.

Hromalik et al. (2019) explained a two-year UDL training process for community college faculty. For the action and expression UDL component, Hromalik et al. (2019) reiterated that the primary purpose of offering and permitting flexible assignment submissions was "to ensure that students effectively access and use information and demonstrate their knowledge" (p. 92). Hohlefelder and Schroeder (2021) suggested offering students only two or three creative choices with clear instructions to prevent students from feeling overwhelmed by too many options. UDL strategies should help students work comfortably, increasing their confidence and ability to express what they have learned (Hohlefelder, 2021).

Methods

Four faculty members reviewed revised assignment instructions. Three were from outside the Health and Exercise Science Department and included a UDL expert teaching in the Education Division. An adjunct instructor within the Health and Exercise Science Department also provided feedback. The new assignment, titled Exercise Science Profession Learning Experience, was piloted in the fall of 2021 and offered two choice scenarios. A student could approach the assignment as if responsible for hiring an exercise science professional to work with employees or clients served at a specified place of employment. The second option was similar to the original profession exploration assignment, where students would focus on a specific exercise science career for future employment. The task was to compile the required assignment information, including the exercise science job responsibilities, duties, settings, and educational and credential requirements. Pros and cons of the job and a reflection were also mandatory, as were credible source use and APA style reference citations. The product options included a PowerPoint slide presentation with or without narrations, a video presentation with source citations, a traditional essay-style paper, or a job

advertisement with source citations. A detailed grading rubric was used to assign grades. The Introduction to Exercise Science spring 2022 and fall 2022 students received the same instructions and product options for the assignment.

Results

Seven students in the fall 2021 pilot course chose a PowerPoint presentation, three completed a traditional essay-style paper, and two submitted a video presentation. The results showed a higher completion rate (85.7%) than the fall 2020 and spring 2021 rates, with 12 out of the 14 enrolled students submitting the assignment. Fifty-seven percent of the students earned a C or higher on the assignment.

Twenty-one of the 22 spring 2022 students submitted the assignment, demonstrating a 95.5% completion rate. This result presented an 11.44% increase from the fall 2021 pilot semester. For the selected product options, 17 chose the PowerPoint presentation, one provided a narrated PowerPoint presentation, two submitted the essay-style paper, and one completed a flyer. However, the flyer choice was not a presented or discussed option. The overall grade data showed that 59% of the spring 2022 students earned at least a grade of C on the assignment.

For the fall 2022 course, 100% of the students submitted the assignment, with 71.4% earning a grade of C or higher. These results indicated a 4.71% and 21.02% increase from spring 2022 in assignment completion and performance, respectively. Thirteen students chose the PowerPoint presentation option, and eight selected the traditional essay-style paper.

Discussion

A higher percentage of students completed the assignment when provided with options for the submitted product. There was a 16.67% increase in the completion

rate from fall 2021 to fall 2022. Creating a PowerPoint presentation was consistently the preferred option each semester. Students who chose to submit a PowerPoint presentation reported in the reflection component of the assignment that it was their preferred method for organizing and writing the information. They liked adding a design effect and enjoyed completing the slides due to a sense of accomplishment after finishing each one. This feedback was consistent between the three semesters. Students also reported they were motivated to complete the assignment because they had written many essays throughout the semester for other courses and appreciated the change and ability to choose.

The traditional essay-style paper was the second most completed product option. Reflection feedback revealed that these students preferred writing essay-style papers because they were inexperienced with PowerPoint. Some students indicated that their writing skills were strong and that submitting a report was a better way for them to meet the assignment's requirements.

Student performance, as determined by the assignment grade earned, improved from fall 2021 to fall 2022. There was a 25.26% increase in students who earned a grade of C or higher. Some students' work did not address all assignment criteria, resulting in grades lower than a C, but this was mainly due to invalid information sources and a lack of source citations in APA style.

Conclusion

While assignment completion rates and performance, as measured by earning a grade of C or higher, increased when students were offered product options, student feedback on the course evaluations for fall 2021, spring 2022, and fall 2022 did not indicate that the Exercise Science Profession Learning Experience was as valuable and applicable of an assignment as the pre-COVID profession exploration reflective essay. One positive

outcome is that students reported that having assignment product options enabled them to use their preferred skills. Further qualitative analysis of the assignment reflections and quantitative study comparing the product type and grade earned will be conducted. The assignment product options will continue to be offered each semester, with the hope that students can return to the practice of observing and interviewing exercise science professionals in the field as soon as COVID-19 social distancing, masking, and vaccine requirements allow. The in-person experience appears to be the most valuable and memorable option for students.

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Instructional Forum Article Submission Guidelines

Article length is discretionary—both short and long articles have their place in the Instructional Forum. Articles can be a paragraph to several pages; accessible articles could be anywhere from 500–2000 words. Depending on the number of paragraphs there are in an article and the length of the article title, approximately 700–750 words fit per page. For specific word count questions, contact the editor.

- Keep formatting simple.

- Use Times New Roman, 12-point font.

- Use one-inch margins on all four sides (top, bottom, left, right).

- Keep things such as bold/italics to a minimum.

- Omit headers/footers, page numbers.

- Let text wrap—do not manually hyphenate words. Turn off hyphenation in Word.

- When referring to various colleagues, omit titles such as Dr., as well as Ph.D., especially if one or more do not have such a title or degree. Also, refer to people by their full name (first and last) the first time you mention them; after that, it is appropriate to refer to them by last name only.

- When mentioning a person's position, use the following standards:
  If the title is alone in a sentence, use all lower case letters, but capitalize the department:
  > As the vice president for Student Affairs said, …

  If the title follows the name, use all lower case letters, but capitalize the department:
  > Dr. Smith, vice president for Student Affairs, believes…

  If the title precedes the name, use initial upper case letters:
  > Vice President Smith argued…

- If you have research, use the APA or MLA style for documentation, and make sure your citations are complete.

- Proofread before sending the article to the editor.

- Submit the file in Word format (.docx).

- To include illustrations, note where they appear in your article, but please save and send them as separate loose files—NOT embedded in a Word doc.

  Photos should be high resolution JPEG (.jpg) files. Low resolution photos from the Web are not acceptable.

  Tables, figures, and graphics should be saved as .PDF files for submission.

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