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Creating a Climate of Increased Motivation and Persistence for Electrical and Computer Engineering Students: A Project-Based Learning Approach to Integrated Labs

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Work in Progress: Creating a Climate of Increased Motivation and Persistence for Electrical and Computer Engineering Students: A Project-Based Learning Approach to Integrated Labs

Abstract

This work in progress studies the impact on students and faculty and their perceived value of integrating project-based labs with lectures on student learning in a sophomore-level electrical and computer engineering course. Historically, engineering courses have been structured with a division between the theoretical lecture and the applied lab, preventing students from making clear connections between the two. Today's students do not find this legacy approach effective [1], [2]. In order to enhance student learning and concept retention in a large electrical and computer engineering program, a faculty team is redesigning the sophomore year experience using a project-based learning approach. This study describes the work of one instructor teaching a freshman-level course as part of the experience of exploring the full integration of labs and lectures that incorporate industry-level, real-world problems. The questions we seek to address are:

- How does integration of project-based lab and lecture contribute to students' perceptions of value, motivation and success?
- How does integration of project-based lab and lecture contribute to instructors' perceptions of value and motivation to modernize instruction?

In this paper we discuss the historical approach to the design of the course, which we discovered was from the early 1980s, the time of the last major curriculum revision. In addition, using the MUSIC Model of Academic Motivation together with course data, we present baseline data from current students and instructors in regards to overall performance. Finally, using the MUSIC Model and course data from instructors and students in the revised course, we report some insight on perceived value and performance in order to make comparisons between the old and revised curriculum.

Additional data sources were pulled from student feedback as well as analytic memos from the instructor. For the purpose of this paper, the combination and cross-analysis of this data resulted in a set of lessons learned and recommendations for faculty looking to adjust the design of their course to be more integrative. For the broader purpose of this grant project, this data will be used to influence the trajectory of the course and refine methods for more thorough integration of the labs. While our original expectation was that the integration of project-based labs would increase student success, as measured by course grade distribution as well as self-reported perceptions through the use of the MUSIC survey, we actually found little to no change in these measures. In addition, we anticipated the results from the research would reveal that having students

participate in industry-level, real-world scenarios would contribute to increased authenticity students assign to the course content, also to which we found little to no change. Even though our original presumptions were unfounded in these two specific quantitative measurements, there are several other factors that have arisen that allow us to nevertheless make meaningful recommendations to other electrical and computer engineering instructors, as well as department administration, as we continue to modernize the student experience.

Introduction

Historically, engineering courses have created a division between the theoretical lecture and the applied lab, preventing students from making clear connections between the two. Today's students do not find this legacy approach effective [1], [2], especially as the primary means of teaching and learning, and so we seek to find ways to remedy this issue. This study is being conducted in the Virginia Tech Department of Computer and Electrical Engineering as part of their involvement in the Revolutionizing Engineering and Computer Science Departments (RED) grant, awarded by the National Science Foundation. The NSF RED project is aimed at shifting departmental culture by taking a critical look at the comprehensive program structure and overhauling the late freshman- and sophomore-level curriculum to better address today's student needs. Over the past 18 months of the grant-based work, the grant PI and department faculty teams have collaborated to develop this vision through a base set of eight courses for all students to complete by the end of their second year. Consequently, the base courses must provide students with a broad enough view of the field that they can make a satisfactory choice for their pathway to a degree, while also providing them with basic knowledge that will be required of any of those pathways.

The program goals for the base courses are to 1) strengthen the integration of both electrical and computer engineering and ethics topics across the sophomore experience, 2) increase the level of student engagement with professionally-oriented tasks and skills, and 3) identify and develop strategies for instructor communication across courses to help students establish a more comprehensive view of the field. The grant PI team began by exploring a way to support a team of faculty toward curriculum revision. The grant PI team explored threshold concepts [3] as a way to guide faculty in identifying content targets that will lead students toward a better understanding of *big picture*, fundamental concepts (see related literature review [4]). These targets have been used to guide conversations and participatory design sessions with both large and small groups of departmental faculty toward curriculum design. Through this work, the team has identified the need to create experiences for students to both strengthen their professional skills and more meaningfully engage in the content throughout and beyond their coursework. For some instances, faculty are working on ways to develop cross-course, active learning opportunities for students in order to strengthen the connection between theory and practice to broaden their understanding of a professional experience.

Now in year three of the grant, we are building on the work of the previous two years (as described in [5]) and are preparing for the multi-stage roll-out of the new sophomore level curriculum (see Fig. 1), beginning with the introduction course offered to second-semester freshman. The work presented in this paper is focused on the efforts of an instructor teaching the *first* of the eight courses. In this course, and with the goals of the grant in mind, we seek to understand how the integration of traditional lecture with a lab component may contribute to student success and perceived value of the course and, ultimately, the program as a whole.

The intention was for this integration to be achieved through a project-based learning approach, incorporating industry-informed, real-world problems. The questions we originally sought to address are:

- How does integration of problem-based lab and lecture contribute to students' perceptions of value, motivation and success?
- How does integration of problem-based lab and lecture contribute to instructors' perceptions of value and motivation to modernize instruction?

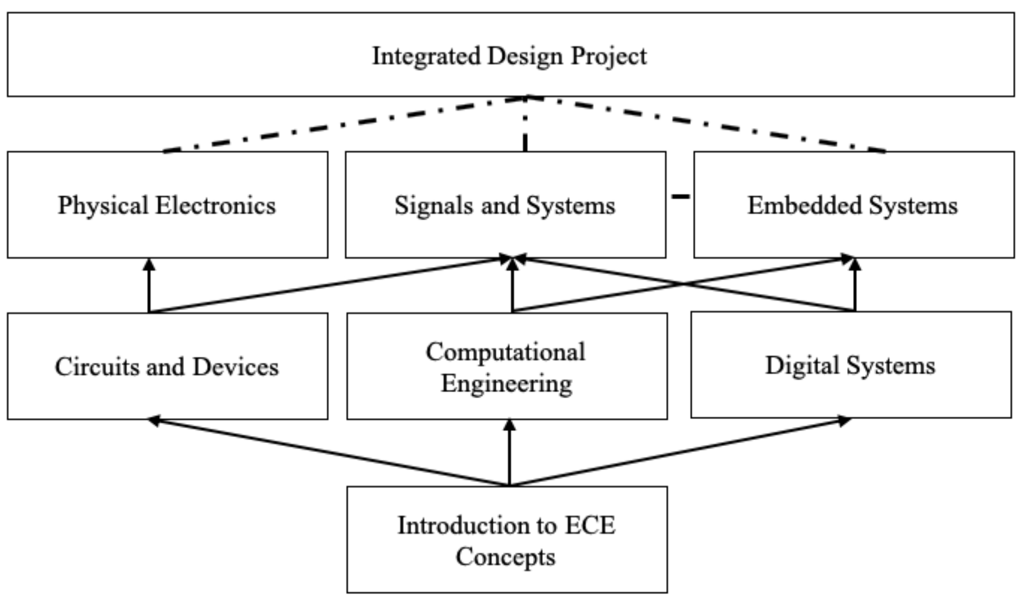

Fig. 1. New base courses and prerequisite chains to be implemented starting Spring 2019. (Dashed lines indicate corequisite.)

Literature Review

As the PI team was developing the vision for the NSF proposal, there was discussion regarding the best possible approach to making a transformative impact on student learning, engagement, and overall culture in the department. The sophomore year was chosen as a specific target for a number of reasons. First, due to the nature of the latter half of the degree program, students would be facing decisions regarding specialization of major (12 possible pathways). As the researchers wrote in the original grant proposal, it was determined that a focus on the sophomore year would allow us to "create supportive liminal environments [6] that foreground difficult concepts, provide opportunities for students to connect concepts and practice, encourage students to use the language of the discipline, and increase their tolerance for uncertainty."

Second, a review of literature indicates that the sophomore year is a time of transition [7]. Historically, institutional attention and resources are provided for first year students, students transitioning from high school to their freshman year, to support retention rates as well as student success and persistence [8], [9]. However, as research indicates [10], students are not necessarily able to transfer the impact of the support they received during these first year programs to subsequent years in college, thus retention rates, as well as student success rates, indicate a significant decrease. Through a focus on strengthening the programming of the sophomore year, the hope is that increased support, transformative teaching practices, and strengthening of overall culture will provide an environment for students that supports them through this second year transition. It is important to note that the first course in the revised sequence, shown in Figure 1, is a freshman-level course and the focal point of this research, while the other seven are sophomore-level courses.

The choice to focus on project-based learning is being driven primarily by two of the goals of the grant, which we refer to as our focus on the digital electronics metaphor of *fan-in, fan-out*. Fan-in relates to the diversification of not only the students who enter the program, but also how they have been prepared to engage in engineering education (i.e. methods of teaching and learning to be successful in engineering). Fan-out relates to the diversification of careers pursued by students graduating from the degree program. In order to increase this order of complexity, the inter-module must be re-designed. Historically, for example, many of our students work for government defense contractors upon completion of their degree. In building a foundation for the work of the grant, we have learned that the field of computer and electrical engineering today reaches well beyond these traditional careers, including options in finance, public policy, and law. To support these efforts as well as the students who would be most successful in this environment, we recognize the need to adjust some of the teaching methods that faculty have been using.

As noted in the literature on how people learn, "a major goal of schooling is to prepare students for flexible adaptation to new problems and settings" [11, pp. 77]. Project-based learning is one such teaching strategy that appropriately prepares students by giving them permission to engage in open problem solving, challenging tasks, authentic context, and learning through teacher facilitation as well as peer support [12]. By one definition, problem-based learning is "aimed at giving the learner effective skills in problem-solving, self-directed learning as a life-time habit and teamwork, all while acquiring an integrated body of knowledge from many different subject areas or disciplines" [13, pp. 119]. While there are some degrees of variation between project- and problem-based learning, "project work is problem-based by definition" [14, pp. 659]. Some of the characteristics, as described by Kolmos & Graaf [14, 15], include cooperation among peers and instructor, discussions, and project management. In addition, the *project* engages students in *problems* that are "highly challenging" and "reflect reality" [14, pp. 659]. Through a focus on the project- and problem-driven approach, teaching becomes more learner-centered and students engage in problems that are authentically modeled after industry-driven needs [2, 11, 16], which is ultimately our goal. In addition, while a common criticism of project- and problem-based learning is that students gain less knowledge, Graaff & Kolmos [14] make note that this issue is not unique to, or a direct result of, project-based learning. They assert that, "generally, there is more and more scientific knowledge and the curriculum cannot cover everything, but must be selective." [14, pp. 661] Thus, the incorporation of a strategy such as project-based learning will no further limit students in the knowledge they gain than other teaching strategies, and may have the added value of motivation and relevance. As noted above, because we are focused on diversifying participation in industry, it also is important that these projects mimic those we anticipate students experiencing beyond the degree program.

Specific to this team, the drive for change is fueled by an understanding that many of the entry-level (i.e. freshman, sophomore) STEM courses have less than desirable student success results. Specifically, in electrical and computer engineering some core disciplinary courses have high DFW rates (> 50%) and serve as a barrier to student success and completion of the degree program. Using inspiration from peers at other institutions, Virginia Tech faculty are working to redesign these courses in ways that engage students in projects to promote deeper understanding and enhance student success [17], [18], [19]. It is the intention that, upon successful development and deployment, not only will students be more successful in the program but the university itself will begin to see how instructional methods, such as project-based learning, can be successfully embedded toward providing a valuable curricular experience for students, especially within the engineering disciplines. We feel it is important to note that this department is one of the largest departments on the campus, as well as among our peer institutions, with over 130 faculty and over 1,400 undergraduate students. Thus, this research is the beginning of a longer process that will begin to demonstrate how the process, and its outcomes, can be used to truly transform large departments and faculty bodies that are deeply and historically (over 30 years) rooted in their methods and practice.

Research Design Overview

As the authors seek to understand the impact of a shift in the curriculum, it is important to analyze both historical and current data. The historical, departmental data was used to create an understanding of how students and faculty have previously participated in the courses and overall curriculum experience. The intention is that the current data be used to reveal how both students and the faculty perceive value and success of the course and how that may contribute to overall success in the degree as well as the field of electrical and computer engineering. The researchers examined both qualitative and quantitative data, with the intention of revealing a more comprehensive look at both the need for, and the impact of, the transition to an integrated lab approach.

Setting and Participants

Historically, ECE 2004 has been a way to begin to introduce students to one aspect of Electrical and Computer Engineering, with a heavy focus on topics pulled from electrical engineering. Students enrolled in this course were just at the start of their sophomore year experience as well as their journey through the ECE degree program. Over the past five years, the course yielded a typical rate of failure (a grade of “D” or below) at 20% with an average withdrawal rate of 4.5%. This rate is typical of *entrance* engineering courses at Virginia Tech, that is, courses that introduce students to a specific discipline.

We explored the historical and revised versions of the first course of the sophomore year-sequence in the electrical and computer engineering degree program. Historically, the first course in the sophomore sequence, titled *Electric Circuit Analysis,* was designed to focus strictly on technical analysis of electrical networks (an EE-focused area), where the revision, titled *Introduction to ECE Concepts*, is designed to focus on a *big picture* view of the entire major as a continuum across EE and CPE. Typical enrollment is approximately 250 students per semester. For the Fall 2018 offering of *Electric Circuit Analysis (ECE 2004)*, during the first phase of data collection, the lecture was divided into two sections of approximately 125 students, each with their own instructor; students were then distributed across three sections of the lab that were separate from the lecture section and taught by three different instructors (see Fig. 4). The Fall 2018 data for this paper was collected from one of the lecture sections, with approximately 117 officially enrolled students and one instructor. The revised course, *Introduction to ECE Concepts (ECE 1004)*, integrated the lecture and lab sections. It was offered for the first time in Spring 2019, was taught in 4 sections, two with one instructor, and two with another (see Fig. 5). The Spring 2019 data for this paper was collected from two of the four sections (Instructor A), with enrollment of approximately 120 students, combined.

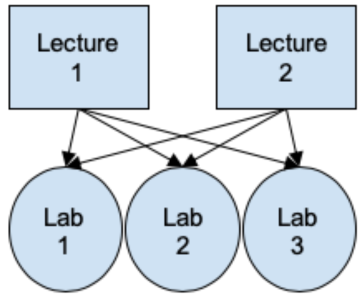

Fig. 4: Historical lecture and lab structure for *Electric Circuit Analysis*

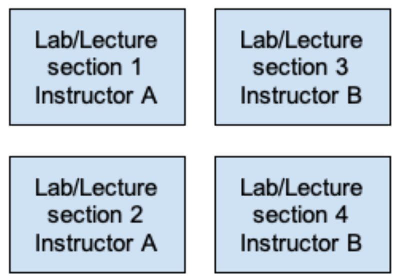

Fig. 5: Revised integrated lab structure for *Introduction to ECE Concepts*

Data Collection

We first explored the historical, departmental data. We collected rates of pass, fail, and withdrawal (DFW) of the ECE 2004 from the past five years. While it was our intention to look at student trajectory through the major following their time in ECE 2004, we recognized that similar data would not be available for students in ECE 1004 for quite a bit of time. We will monitor these trends over the coming semesters and years as we continue to build on this work.

In addition to departmental data, we employed the MUSIC Model of Academic Motivation. This tool was used as a primary means of understanding how students and faculty perceive value and success in the course through reflection on a number of elements, called “inventory scales” [20] (see Table 1). Students and faculty complete a survey of questions that are scored based on relevance to each of the categories. The score for each scale then provides insight toward perception as well as consistency among the responses. Higher scores indicate a higher level of consistency and vice versa.

Table 1: Summary of *MUSIC Model Inventory Scales*.

Scale	Measure
eMpowerment	How students perceive they have control in the course learning environment.

Usefulness	How students perceive the coursework being useful to their future.
Success	How students perceive they can succeed at the coursework.
Interest	How students perceive that the course and instructional methods are interesting.
Caring	How students perceive the instructor cares about their success in the course and their well-being.
Effort	The amount of effort students perceive they put into the course.
Ease	How students perceive the course to be easy.

For this particular project, we primarily focused on the scales related to usefulness, success and interest. While the other scales are relevant to the work, this work-in-progress is designed to contribute to the future iterations and improvement on the introductory course and subsequent courses, part of a much larger process. With a focus on how students value the content of the course as well as the instructional methods, we generated a picture of the student experience to help us to make recommendations for instructors from both a teaching strategy and content development perspective.

An additional data point was provided through the use of a formative assessment protocol with students. This face-to-face session is typically conducted in a focus-group format where a facilitator from our Center for Excellence in Teaching and Learning prompts students to respond to a set of three open-ended questions related to the design and delivery of the course, speaking to aspects of the course that are going well, poorly, and should be addressed for potential change. Students are given a few moments to reflect on these questions individually, then engage in discussion in small groups, followed by a report-out to the larger group with a larger group discussion. The results from this session are analyzed by the facilitator and then shared and discussed with the course instructor. The facilitator explores student responses for trends and categories, highlighting those categories with the most frequent and intensity of responses. These categories are then paired with suggestions from research-based instructional strategies, relative to the anticipated areas in need of most improvement.

As a part of the mid-semester feedback process, it is recommended that the instructor engage in some reflection on both the process and the results following the meeting with the Center facilitator. Since the nature of the analysis and reporting on the feedback session mimics that of developing codes for qualitative research, the instructor was provided a set of codes to be used as "a prompt or trigger for written reflection on the deeper and complex meanings it evokes." [21]

As such, the instructor was able to develop an analytic memo in response to these codes, helping him "work *toward* a solution, *away from* a problem." [21, pp. 44]

Analysis

The combination of these data sources was used to determine both student and faculty perspectives on value and success. This is important to our work because students and faculty must have a symbiotic relationship to generate positive outcomes [22], [23]. Each source of data was individually analyzed and summarized. The quantitative data are presented in the results and used to provide some baseline data. While in the current stage of the project this data is not particularly valuable, it is important in coming to understand some of the historical perspective of the department and whether the curriculum revisions did or did not have an impact on student standings.

The qualitative data (namely the student feedback and instructor analytic memos) were analyzed through the development of codes. While the first phase was the analysis of student feedback, those codes were then provided to the instructor as a lens through which to engage in reflection toward the creation of the analytic memo. As a result of this analysis, we are able to present a set of both *lessons learned* as well as *recommendations for the future.*

Results

We employed both student and instructor versions of the MUSIC survey as a way to explore student and instructor perceptions of value and success, relative to the course content and course design. We distributed this survey to students enrolled in the Fall 2018 (ECE 2004) version of the course, prior to course revisions, as well as the Spring 2019 (ECE 1004) version, which was the first offering of the revised course. Through a comparative review of the data (see Table 2), students expressed moderate to high levels of interest in both of the courses overall, with very high levels of perceived usefulness. Interestingly, students rated both offerings as very difficult (Ease), yet gave the instructor a high rating overall. We note, however, that the design of the course seemingly had very little impact on student ratings of the inventory scale, though several ratings showed a decrease. Areas of difference worth noting are concerned with success, ease, and overall course rating. While areas are still highly rated, we use the discussion below to provide some insight as to why these areas may have been negatively impacted along with some recommendations for addressing the decrease in rating.

Table 2: Student MUSIC scale results from Fall 2017 and Spring 2019. Ratings are on a scale of 1.0-6.0.

Scale	Fall 2017	Spring 2019	Instructor
Interest	4.7	4.5	4.5
Usefulness	5.3	5.4	6
Success	4.8	4.5	5.5
Ease	2.6	2.3	NA
Overall instructor rating	5.3	5.1	NA
Overall course rating	4.7	4.3	NA

The MUSIC survey was followed up with the collection of student feedback during our mid-semester feedback sessions. As students were asked to reflect on both the positive and negative aspects of the course, there were several trends that ran across the multiple course sections. While most students commented on positive aspects, such as the instructor's positive attitude, relevance of content, and overall interest in content, there were a number of concerns related to how the course was being delivered. The bulk of these concerns can be categorized in one of two areas:

1. Alignment of homework, tests, and in-class materials, with requests to do more practice problems and practice tests in order to feel more adequately prepared to do the labs and tests.
2. Engagement with the course material (theory) through in-class activities (labs/projects).

Once the instructor was presented with the full results of the student feedback, and following the conversation with the facilitator from the Center, he was able to prepare the analytic memo. Through this process, he identified both a set of *lessons learned* and *recommendations for the future*. The lessons learned include:

- The need to consider the student level; in this case, the students are freshman, not sophomores, and there was a larger disparity than anticipated.
- The number of topics that are presented needs to be narrowed to include the minimum, core essentials in order to allow time for depth of exploration and engagement in labs and projects. As a result of trying to cover too many topics, in-class demonstrations and labs were only offered periodically due to time constraints, even though they were found to be extremely worthwhile.

- There is disparity among personnel regarding preparedness to teach an integrated lab course as well as the depth of content required. Faculty buy-in of laboratory-style teaching is a must.

  The recommendations for future iterations of this and subsequent courses in this series involve setting the stage for a laboratory-style course both through the design of the course and with student expectations.

While there are larger, department-level recommendations that are discussed below, some of the more basic recommendations include things such as:

- having students bring their equipment to the classroom,
- hosting class meetings in a space that is conducive to active learning,
- having ample power sources available for student equipment (may be unique to more of the engineering disciplines), and
- carving out time in the course schedule for active learning by shifting less-directly-relevant material to future courses.

Discussion

The work in progress described in this paper is part of a much larger effort to explore how revisions to this departmental curriculum contributes to aspects of student success, diversity of students, and faculty collaboration, in addition to some larger themes within departmental culture. In this initial exploration of the first course offering of the revised curriculum, several key lessons were learned.

First, while the focus of the grant and curriculum revision remains on the sophomore year, the first course in the series is offered to second-semester freshman. As the instructor discovered, and as research indicates, the disparity between these two groups of students is worthy of attention. In his analytic memo, the instructor states, "the age of students is playing a larger role than anticipated. It is only one semester but it makes a surprisingly big difference in their rate of understanding." **Thus, the recommendation is to engage in a practice of developing information-based expectations and build a solid understanding of the audience for each of the courses.**

Second, in order to accommodate the amount of time needed to truly create a lab- and project-based learning environment, the content must be trimmed to the core essentials. The instructor of this course reflected on the fact that in order to allow students space to absorb knowledge, there needs to be a reduction of what is presented to them. He states that we are historically interested in knowing what industry is asking of us in terms of student preparation [24], [25]. However, with his own extensive industry experience, he also recognizes that students actually only use a small percentage of what they are taught through many of these degree programs. He states, "the inertia of many of the legacy programs speaks to what they might need to know. But, what is industry telling us now?" If we are to listen, we recognize that students can, in fact, be fully prepared for success in industry by exploring more depth and less breadth, were the program to be designed accordingly. Because of this legacy model, the instructor was feeling pressure from faculty teaching subsequent courses to cover an extensive number of topics at a level that was impossible to do when taking time to do integrated labs. He recognized that students were unable to arrive at the moment where the connection between theory and application "clicked". He stated that, "to get to the click stage for the average freshman student, it takes a long time. I'm not convinced that students have overcome the gap in their understanding between lecture and lab; between applied and theory." **As such, the recommendation is to do a realistic analysis of both industry expectations as well as program-level objectives and identify developmentally appropriate levels of presentation, working, and mastery for student expectations**.

Third, as engineering courses are typically taught through the legacy model (heavily theory-based with isolated labs), this approach will require a shift in mindset by faculty as they prepare to focus more heavily on application-driven teaching strategies. There are faculty who are not interested, or not comfortable, with hands-on demonstrations and in-class labs. In addition, providing an opportunity for students to explore a *big picture* view of how theoretical topics are interconnected will require faculty who are prepared to present the information in such a way. **The recommendation here is to carefully identify faculty who are willing and prepared to make the leap from a traditionally lecture-based course to one with project-driven activities that require peripheral knowledge for contextual guidance.**

The fourth lesson learned is the importance of faculty to exhibit unwavering buy-in to the laboratory- and project-based approach to teaching and learning. The instructor from this study reflected on this aspect of the course quite intensely. While he began the semester prepared to engage students in more labs and projects, he identified mistakes in his own understanding of what this meant. Thus, he mentioned the need to "flip the perspective" recognizing that it should in fact be viewed as a "lab course with theory thrown in, instead of a theory course with a lab component." Otherwise, the issue that arises is that the time and effort required for a lab component significantly outweighs the time and effort required to cover a similar amount of material in the traditional lecture approach. This fact, coupled with legacy inertia insisting that large amounts of material be covered, results in the lab component getting pushed aside too readily. Changing the point-of-view of the course to one of "a lab in which they will learn theory" will reorganize the material in a more organic way, one that will take full advantage of the lab component. Unfortunately, this requires a reduction in the number of topics covered, even if significant amounts of out-of-class assignments are given. This outcome was not initially anticipated, with the assumption being that if students work enough outside of class they will get all the material desired. The reality is that students lose the connection between theory and practice if practice is relegated to outside-of-class assignments, even if there is ample availability of teaching assistants and office hours. **Therefore, the recommendation here is to provide**

extensive faculty professional development on research-based teaching strategies along with ongoing support as they explore this flip in perspective. An additional and/or alternative recommendation is to identify faculty who are more oriented toward a laboratory approach to teaching and support their efforts to explore depth versus breadth with students.

Conclusion

One point of motivation for engaging in the NSF RED grant was to examine the department's approach to curriculum design, maintenance, and revisions, which was the lead component of the larger *departmental culture shift* driving the project. Indeed, as Kolmos and Graaff [15] note in their overview of problem-based learning, "a curriculum can be regarded as a social construction depending on culture, national regulations, institutional policies, and academic staff" [pp. 142]. Through this examination, we discovered that the curriculum had not undergone significant revisions since the early 1980s, thus engaging both students and faculty in antiquated content delivery, limited cross-curricular connections, and dated industry-driven goals. The apparent gap between scholastic theory and industry expectations in the curriculum thus led us to further explore areas where the most impact would occur. In reviewing departmental data, discussions with industry partners and focus groups, research on higher education, and student and faculty feedback, the RED grant team recognized the sophomore year (with the addition of one freshman course) was an ideal focal point for this particular grant.

While we did not directly answer the questions we sought to answer related to value, motivation, and success, we were able to gain valuable insight into the degree of effort required to shift curriculum focus from theory-based to application-based. We do not view this work as a failed effort merely because we did not directly answer our questions, rather we spent significant time in the analysis and reflection phase to identify what can be gained from the work and the data. For each of these lessons, we have identified a recommendation (or two) that we felt was important to communicate to other instructors, departmental leadership, as well as above and beyond our home base at Virginia Tech. These lessons and recommendations are being considered and incorporated into future offerings of ECE 1004 and, our hope, in other courses in the sophomore sequence.

The next iteration of this course will be offered in Summer 2019, followed by additional offerings in Fall 2019 and Spring 2020 (and beyond). Because this course is being developed as part of a bigger curriculum adjustment initiative, there is a level of permission provided to the instructor to iterate and reflect on the course design as well as the challenges being faced through the incorporation of project-based learning. Already, it is recognized that some of the experienced and predicted challenges are similar to those beginning to evolve in the literature, such as faculty role and response in shift, lack of breadth and too much depth, and added stress on students (and perhaps faculty) [15]. The instructor fully acknowledges the challenges he faces ahead with this method of teaching as well as in this broader process. In quick reflection on why this will be so challenging, he states, “the inertia of the old legacy way is so strong and tough to overcome.” Regardless, his work and efforts will continue he says, “because I believe in this project.”

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