WIP: Continuous Professional Development

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WIP: Continuous Professional Development for Electronic Technology Degree Programs

Overview

This work in progress describes a project for increasing faculty competitiveness in research and scholarship. The rapid evolution of technology had highlighted the clear need for academia to equip students with the tools to succeed in the modern-day STEM technical workforce. To remain current with advances in technology and heightened industry expectations, degree programs must continuously reevaluate their curricula to ensure that graduates have the requisite skillsets and competencies to compete in today's – and tomorrow's – job market. Today's students are being trained for jobs that did not exist even ten years ago. Indeed, many current jobs will be obsolete ten years from now. What remains unknown is how can we best prepare our students for this ever-changing job market?

To address this, we have been researching best practices to produce top-tier students and found that continuous faculty development is key. The literature says that faculty professional development is a part vital component of continuous learning and is widely regarded in academia as a high-impact practice for faculty success. As such, we are strengthening faculty development through monthly industry-led hands-on training workshops that train them on cutting-edge technologies, establishing faculty learning communities via faculty guilds, and designing digital badges. The expected outcomes from these activates are that more faculty will engage in a continuous professional development process to become and remain current with industry trends to better educate the electronic technology workforce of the future while increasing personal research capacity.

Increase faculty expertise in cutting-edge software technologies

The methodology of educating STEM students is evolving almost as fast as the technology itself. Today's students are being trained for jobs that did not exist even ten years ago. Indeed, many current jobs will be obsolete ten years from now. How can we best prepare our students for this ever changing job market—specifically in the field of electronic technology (ET)? In alignment with NC A&T's *Preeminence 2023* Goal 1 "Excellence in Teaching and Research and Engagement", this proposed project is committed to creating a culture that supports teaching excellence. The National Center for Education reported that, "Professional development enables educators to update their knowledge, sharpen their skills, and acquire new teaching techniques, all of which may enhance the quality of teaching and learning [1], [2]. Research indicates that faculty professional development can have measurable effects on student performance" [3], [4]. Literature also states that faculty professional development is a vital component of continuous learning and is widely regarded in academia as a high-impact practice for faculty success [5].

Continuing professional development includes a wide range of strategic activities aimed at improving faculty members' performances as scholars, educators and advisers [6]. Hence, professional development is an ongoing process throughout faculty members' academic career. A faculty member's professional development is "no longer an optional or dispensable 'add-on' to the list of benefits available to faculty at universities" [7] but is seen as playing a critical role in the promotion of academic excellence. Faculty members' development is accordingly considered a key factor for enhancing and ensuring quality and supporting institutional change in

the academy [8]. Conferences, seminars and workshops participation have been the cornerstone of faculty development because they offer insight from experts in a particular field of study. Added benefits include expanding faculty members' network of kindred researchers, leading to possible future collaborations.

For our specific purposes, the focus is on faculty development of pedagogical and instructional skills. Faculty Guild, a new model for teaching success, was introduced by Dr. Gail Mellow and is rapidly gaining popularity among US colleges and universities. Faculty Guild is a platform for online, or blended, faculty learning communities focused on practice improvement. They provide faculty a space to reflect on their current teaching practice, collaborate with peers, and set goals for their future teaching. Faculty grow their thinking, approaches, and ability to innovate within their teaching practice through the platform. In two-hour sessions each week over the course of three semesters, faculty grow in their ability to curate innovative teaching ideas. This model is based on six years of research, development, application and analysis. The original project, titled *Global Skills for College Completion*, started in 2010 and was funded by the Bill and Melinda Gates Foundation and the Kresge Foundation. It involved dozens of colleges and hundreds of faculty who reported increased student retention and pass rate improvements of nearly 10% as a result of participating in the Faculty Guild. Today, over 50 universities have incorporated faculty guilds into the professional development portfolio of faculty. The Faculty Guild platform delivers data in the following five areas (Figure 1). Student outcome measures require partnering with Institutional Research departments. With the support of the Faculty Guild platform, faculty members will learn from discipline experts as well as through the sharing of experiences among all members. The art and science of teaching is hard work, and it is often a solo act. To engage and support ET faculty, we see the advantage of faculty being connected to each other as they dive into modernized ET curricula; this is a key method for increasing their pedagogical knowledge and improving their instructional practice in authentic ways. In this way, the strengthened teaching culture in ET programs will result in measurable change centered on student success.

Figure 1: Faculty Guild Data Evaluation

Research Design. We will accomplish the objective of increasing faculty expertise in cutting-edge software technologies by conducting the following activities:

Establish Faculty Learning Communities via Faculty Guild. Faculty Learning Communities are inter-disciplinary groups of faculty (4-8 members) who engage in an active, collaborative, year-long process to enhance teaching through various means including seminars, workshops, the scholarship of teaching and learning, and general community-building exercises. Learning communities are a structured, intensive program that holds faculty accountable for working on issues related to teaching and learning. Continuous reflection about teaching with accountability is the cornerstone of a successful Faculty Learning Community. Physical and online space, a curriculum guide, and ongoing support for the implementation of Faculty Learning Communities will be provided by the Center for Teaching Excellence at NC A&T. General goals include building community, generating faculty interest in continuous learning, nourishing the scholarship of teaching and learning, increasing collaboration among faculty members, and offering rewards for effective teaching.

For this project, an online Faculty Learning Community format will be used, which will enable faculty to participate more easily. Faculty Guild is a platform that is a nationally recognized program for online, or blended, faculty learning communities. This online program is focused on the cultivation of effective teaching practice and improvement. Faculty Guild provides faculty with an online space to reflect on their current teaching practice, collaborate with peers, and set personal goals for their future teaching. Through the platform, faculty grow their thinking, approaches, and ability to innovate within their teaching practice via increases in their awareness of their teaching style, ability to monitor goal progression, and curation of innovative teaching ideas. Our Faculty Guild will focus on cultivating methods that will result in teaching competencies related to the identified ET competencies among faculty. Experiential education pedagogies will be emphasized to shift teaching styles from theory-based to experiential-based (where students learn by doing).

Faculty Guild's outcomes are well documented with more than 77% of the participants around the country reporting that they would be likely to recommend the experience to a friend or colleague. A majority of faculty polled regarded the platform as a valuable use of their time, with 83% regarding it as an effective and valuable professional development program.

Provide Industry-led Professional Development Monthly Workshops and Seminars. Once per month, we will have industry-led training on cutting-edge technology that faculty can implement in the ET experiential learning classroom (Smith Hall 4001). These workshops will be recorded and archived for any interested faculty to access. NC A&T has already invested in a professional development portal, Lynda.com, a platform that provides training materials and exercises for multiple fields. We will supplement this portal with educational materials and exercises specifically for the ET discipline.

Design ET Digital Badge. The digital badge system is used at many companies like IBM to motivate participation and represent competencies. The Center for Leadership and Organizational Excellence (CLOE) will support this initiative by creating the AggiesLEAD ET Badge for North Carolina Agricultural and Technical State University. The ET digital badge will be a holistic approach to professional development that focuses on technical skills within this discipline and leadership skills needed to elevate the knowledge and performance of our faculty and staff. CLOE will provide the online learning portal for communication, registration and

tracking the progress of all ET Badge participants. Faculty will receive a badge for each new ET concept mastered. These additional credentialing badges will be beneficial for annual reviews, promotion, tenure, and reappointment (PTR) packets, and post-tenure reviews.

Project Evaluation Plan and Logic Model

We will gauge the success of these activities by:

- Beginning in Year 1, establish and sustain at least one faculty learning community consisting of 4 – 8 active members. Metric: Meeting agendas, attendance records, and artifacts
- Beginning in Year 1, increase the percentage of faculty who report increase efficacy with cutting-edge software technology. Baseline: Established in YR1. Metric: ET Faculty technology efficacy survey, administered at least annually.
- Beginning in Year 2, ET faculty who teach any of the eight revised ET courses or laboratories will earn at least one digital badge. Baseline: N/A Metric: Administrative Records.

Table 1: Logic Model

Core Strategies & Actions	Outputs	Intermediate Outcomes	Long-Term Impact
INCREASE FACULTY EXPERTISE IN CUTTING-EDGE SOFTWARE TECHNOLOGIES			
- Establish faculty learning communities (FLCs) through the Faculty Guild - Provide industry-led professional development (PD) workshops and seminars - Design ET digital badge criteria for ET faculty	# of FLCs (PM 2.1) # of active members in FLCs (PM 2.1) # of ET faculty participating in PD	IMPROVED EDUCATOR SKILLS # of ET faculty who would recommend ET PD # of ET faculty reporting increased technology efficacy (PM 2.2) # of ET faculty earning digital badges (PM 2.3)	INCREASE FACULTY COMPETITIVENESS IN RESEARCH AND SCHOLARSHIP

* Performance Measures (PM)

In August 2021 our department began this initiative of creating industry-led workshops/retreats where faculty can earn badges for acquiring new skillsets. The desired outcome is to increase faculty expertise in cutting-edge software technologies to better educate the generation-z students and to increase faculty competitiveness in research and scholarship.