

Faculty Learning From the Advisors for Students' Retention and Persistence to Graduation

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Student retention is an ongoing problem and has been for some time now specially in engineering technology education programs. It is a well-established fact that the quality of interaction between a student and a concerned individual on campus, often through academic advising, is a key contributor to college retention. Professional Academic advisors has developed very significant retention strategies that faculty can learn. It is important that faculty and academic advisors partner to explore effective strategies for student retention. This paper examines effective strategies used by four professional academic advisors in engineering technology programs. A questionnaire was developed and completed by advisors to understand best practices that results in better students' retention and persistence to graduation.

Introduction

Academic advisors are committed to the students they advise, their institutions, their professional practice, and the broader advising and educational community. Academic advising is one of the best ways to assist the personal, intellectual, and social development of students. Advising as a service to students links students' academic and personal worlds; therefore, advising cultivates their holistic development. Well advised students are (a) more likely to enroll, (b) less likely to take classes that do not contribute towards graduation, (c) more likely to enjoy college, (d) more apt to persist to graduation. The process of academic advising is important to institutions of higher education and the role of the academic advisor is critical to student retention and student satisfaction with the institution (Gerdes & Mallinckrodt, 1994; Corts, Lounsbury, Saudargas, & Tatum, 2000; Thompson, Orr, Thompson, & Grover, 2007; Hester, 2008).

Academic Advisors in engineering and engineering technology programs play a major role by providing students timely and accurate information to cultivate connections, success, and advancement in engineering excellence. Besides academic planning, advisors help students with career goals, choice of major, field of specialization, degree requirements, general education requirements, academic policies and procedures, student petitions, and even provide support when students are in academic difficulty.

National data shows that approximately 60% of students leave engineering during their first-year (Marcus, 2012). Several studies have identified various reasons why students leave engineering and do not earn degrees in engineering (Cairncross, VanDeGrift, Jones, & Chelton, 2015; Meyer, 2014; Marra, Rodgers, Shen, & Bogue, 2012). One of the important factors identified in these studies was poor advising/guidance which justifying the need for effective and up-to-date advising practices.

This paper examines effective strategies used by four professional academic advisors in engineering and engineering technology programs in Tennessee. A questionnaire is developed and completed by advisors to understand best practices that results in better students' retention and persistence to graduation. It was anticipated that the results of the investigation would lead to a set of empirically-based recommendations to create a more effective academic advising system at the university under study, as well as other colleges and universities offering Engineering Technology programs.

Challenges of Advising

For most engineering and engineering technology programs, a large number of students are served by the limited number of available advisors. Based on *NACADA 2011 National Survey of Academic Advising*, the median case load of advisees per full-time professional academic advisor is 296, or a ratio of 296 students to one full-time advisor (Robbins, 2013). As a result, the needs of many students are not met by the systems in place and failure to provide adequate advisement can lead to more students dropping out early. In addition, many advisors bear additional responsibilities to advising students, including teaching first-year seminars, holding workshops, performing committee work, working at institutional events, and undertaking various other duties that take time away from direct advising with students. In order to cope with this situation, many colleges and universities require faculty members to take an active role in advising. In a study of 1,500 institutions, Habley found that 73% require faculty to advise an average of 29 students (Habley, 2004). Student-faculty relationships are the most crucial connection within a collegiate community. A sense of connection with professors helps students feel like they belong at the institution and the program. When students feel connected to the campus community, they are more often retained and excel academically, creating a winning situation for everyone. Faculty members with their main focus on research and grant writing, teaching, service and curriculum commitments, may not aware of all the best ways to advise a student. Therefore, it is important that faculty and academic advisors partner to explore effective strategies for advising. Academic advisors, working in conjunction with faculty, can develop a means to track student progress toward graduation. Early review of student records and timely communication by faculty advisors is a proactive step towards graduation. Communicating often with students can help simplify the senior check process.

Data Collection and Analysis

A questionnaire survey was created and sent out to four institutions in Tennessee. Participating institutions were East Tennessee State University, Tennessee Technological University, Middle Tennessee State University, and University of Tennessee Chattanooga. Each of these institutions has an Engineering Technology program and survey was filled by the academic advisor of the Engineering Technology program.

Basic Demographic Information of the Advisors

The survey participants were three female and one male with an average of 9 years of experience in advising. They all have college degree (one with master's degree) and worked in multiple institutions before their current positions. All of the advisors have received training on advising provided by their respective institutions. Advisors mentioned they regularly attend conferences organized by NACADA, TASSR, FYEE and various professional development activities. These advisors advise an average of 365 students. Typically they advise all Engineering Technology majors that consist of traditional, non-traditional, transfer and second degree students.

Advising Methods/Models used for Engineering Technology Students

The survey asked advisors if they use any specific advising model or method when advising Engineering Technology students. Advisors mentioned they employ mixed methods depending on the student and the situation. Advising methods they found most effective for Engineering Technology students are appreciative advising, intrusive advising and learning-centered advising (Figure 1).

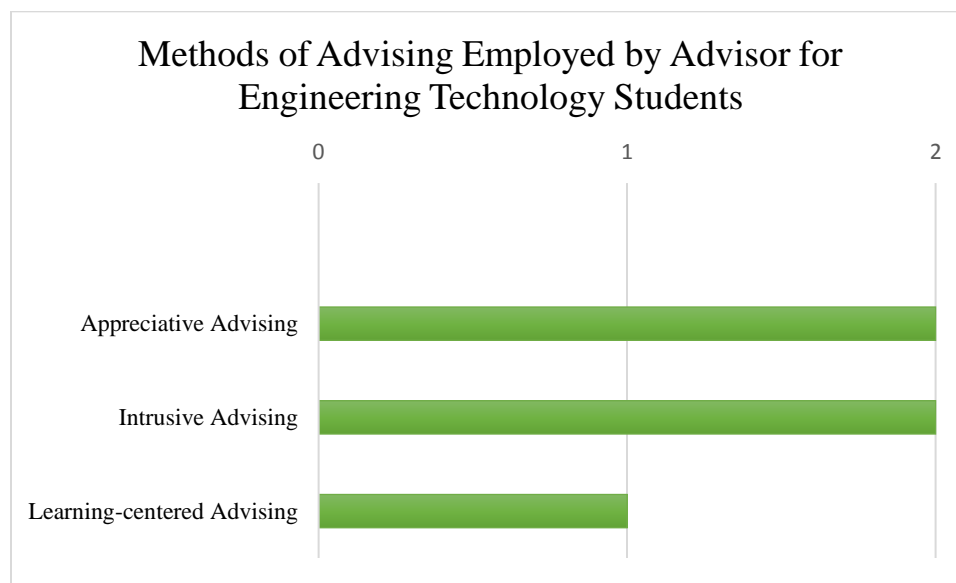


Figure 1: Advising methods/models used by advisor for Engineering Technology students

Appreciative Advising is the intentional collaborative practice of asking positive, open-ended questions that help students optimize their educational experiences and achieve their dreams, goals, and potentials (Bloom, Hutson, & He, 2008). Appreciative advising emerged from an article written by Jennifer L. Bloom and Nancy Archer Martin titled “Incorporating Appreciative Inquiry into Academic Advising” that appeared in the online academic advising journal at Penn State, *The Mentor*. The Appreciative Advising framework is a six-phase model that advisers can use in their work to help students realize and achieve their greatest hopes and dreams. 1) Disarm: Make a positive first impression with the student, build rapport, and create a safe, welcoming space. 2) Discover: Ask positive open-ended questions that help advisers learn about students'

strengths, skills, and abilities. 3) Dream: Inquire about students' hopes and dreams for their futures. 4) Design: Co-create a plan for making their dreams a reality. 5) Deliver: The student delivers on the plan created during the Design phase and the adviser is available to encourage and support students. 6) Don't Settle: Advisers and students need to set their own internal bars of expectations high.



Figure 2: Appreciate Advising Model

The intrusive advising model is based on the premise that some students will not take the initiative in resolving their academic concerns, thereby needing the intrusive assistance of assigned advisors. The use of the word “intrusive,” as coined in Walter Earl’s 1987 article, “Intrusive Advising for Freshmen,” is used to describe this model of advising as “action oriented by involving and motivating students to seek help when needed” (Earl, 1987). The intrusive model incorporates the components of prescriptive and developmental advising models, creating a holistic approach that meets a student’s total needs. The intrusive model is proactive and seeks to address problems as they emerge, rather than being reactive. Essentially, advisors reach out to help students instead of waiting for students to seek help. Proactive strategies, such as academic alerts, enable advisors to help students while they still have time and options to improve grades. An example would be a student who is failing multiple courses and seeks help at the end of a semester when it is too late to recover academically. Intrusive modeling theory is based on three premises:

1. Academic professionals can be trained to identify freshmen students who need assistance.
2. Students do respond to direct contact regarding academic problems when guided help is offered.
3. Students can become successful if provided the information about academic and college resources available to them.

Advisors and students benefit from this model in terms of advising effectiveness. For instance, the student-advisor relationship becomes more than just a “registration process” by engaging

students in the whole academic process (e.g., career exploration, personal development, study strategies, etc.), thus building connectedness to the institution, and ultimately increasing retention rates.

Learning-centered advising model focuses on students and increases student involvement and facilitates discussion, critical thinking and call to action on the students part where the advisor can step back and do more coaching, mentoring, and counseling. This method places more responsibility on the student to take an active role in their academic planning and allows the advisor use teachable moments and direct students on a path - instead of handing them the all answers immediately without explanation.

Effective Advising strategies for Engineering Technology students

The advisors have identified few unique advising strategies that worked better for retention and graduation for Engineering Technology students. These strategies are described below:

1. Being proactive is key: While some students will reach out to their advisor when concerns or questions arise, the students most at risk are those that will not. This tends to be true for first-year and re-entry students who either don't understand the process and procedures of the success coaching team or are unwilling to admit that they are struggling. By proactively identifying these students and checking on progress, discuss resources, and answer any questions that may have can go a long way to retain these students in the program. Robust technology and data analytics makes it possible to do everything from tracking first-generation student progress to triggering alerts when students miss classes. Analytics can make it easier to drive at-risk students to services or other supports before it's too late.
2. Keep them motivated with career prospects: showing students how the classes they take have real-world application and how the curriculum prepares them for the many career opportunities help students to be persistent in the program and make them resilient toward graduation.
3. Early semester progress reports on grades and attendance, Midterm grades, semester campaigns targeted at students near graduation thresholds, and mandatory advising each semester all assist in both retention and graduation because the students must see their advisor at a few times per year. Also, giving students a task to bring to their advising meetings gets them involved and can facilitate other questions about the program ("for instance my email to students tells them to look at courses for the next semester and come with a proposed schedule in hand").

The advisors also pointed out few strategies that seems least effective for Engineering Technology students. Engineering and Engineering Technology programs are highly complete programs and most students enter in engineering program are high performing students in high school. But when they hit their first roadblock - whether it is failing a test, an incomplete homework, or a general lack of confusion in a course – they panic. Because these students are

not used to experiencing failure, they are not sure how to react to it; many of them start to question their own intelligence and their future in engineering. So, telling these at-risk students that it only gets harder, so they better work harder does not work. Asking them to change majors if they do not experience immediate success, especially in math also not an effective way to advise these students. In most cases, these type of advices just work as an agent to drive students away from the program. In this situations, helping students to visit a tutor or to see a faculty member so that they get the support and assistance that they need to actually be successful in their courses help students stay in the program and graduate. Advising technology such as mass emails and bulletins posted are good ways to get information out to the Engineering Technology students as a whole, but they are not as effective as face to face interactions.

Advisors' recommendations for faculty advisors

As more and more programs now require faculty members to advise students, it will be beneficial for faculty member to partner with advisors and learn the art of advising. The survey asked the advisors to provide suggestions for faculty advisors so that they can be more effective in advising. Following are the suggestions provided by the advisors

1. Faculty advisors should take time to find out what is really going on with a student. Faculty advisor should be proactive and support students with difficult issues. Skipping class is a symptom of the real problem. Intentional contact with students with the goal of developing a caring and beneficial relationship typically leads to increased academic motivation and persistence.
2. When Engineering and Engineering Technology students faces academic challenges, sometimes they are hesitant to visit the faculty as they see it as a failure on them. What is intuitive to faculty is new to students. They may not see the relevance or meaning in the content or courses they have to take. Explaining it to them in a way that relates understanding is key to build a supportive relationship. They are not questioning your knowledge or authority, but rather seeking information and guidance
3. It is beneficial to faculty advisor to understand as much as possible about all programs and the department as a whole. Faculty advisor also should be knowledgeable about courses, curriculum, policies, strategies, and an in-house procedure. They should also be aware of any changes to the program and relay that information to students as soon as possible.

Conclusion

Effective academic advising is crucial to the long term success of students in Engineering and Engineering Technology disciplines. The academic advisor is the liaison or link between the students and the university. It is believed that the success of a university is based on the success of its graduates. Given the projective shortage and demand for future engineers in the United States, it is vital that the retention rate and interest in pursuing Engineering disciplines is increased. With that said, academic advising can make a huge difference in the lives and

persistence to graduation for engineering students. Academic advisors can intervene with students who are considering dropping out and assist them with developing a success plan that could “right the ship”, providing a platform for the student to stay in school and excel and feel positive about him/her self.

The literature suggest that early intervention of academic advising is critical. Therefore, it is paramount that freshman engineering and engineering technology students are greeted with a trained advisor as soon as they step foot on the campus. This will help them make the adjustment of a new environment which is filled with many first times experiences. Many students who go to college need to learn how to make good academic decisions, as good academic preparation does not always predict success academically. Academic advisors have a great opportunity to intervene and provide guidance that students need to navigate what often can be viewed as a complex maze.

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Biographical Information

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Dr. Mohammad Moin Uddin is an associate professor in the Department of Engineering, Engineering Technology, and Surveying at East Tennessee State University. His current research interest focuses on (1) data integration and development of building energy models, and (2) sustainable design and construction for knowledge based decision making. He also contributed to data analysis methods and cost effective practices of highway construction quality assurance program. Dr. Uddin develops and implements innovative teaching strategies for engineering and engineering technology education in order to improve student engagement and retention. Dr. Uddin received outstanding researcher award, outstanding service award and sustainability leadership award from his college.

Keith V. Johnson, Ph.D.

Dr. Keith V. Johnson received his B.S. and M.S form North Carolina A&T State University in Greensboro, NC and his Ph.D. from The Ohio State University, Columbus Ohio. Dr. Keith V. Johnson currently serves as Chairman of the Department of Engineering, Engineering Technology and Surveying which also includes the Interior Architecture program at East Tennessee State University. As Chair of Chairs, his responsibilities entailed promoting the highest quality of teaching, scholarship, and learning across the entire university campus. Within his department, there are over 22 fulltime tenure /tenure-track faculty, including coordinators, numerous adjuncts, graduate assistants and over 800 undergraduate and graduate students. Regarding programming, the department offers four BS degrees with eight concentrations. They also offer a MS in Technology with concentrations in Technology and Entrepreneurship.

Dr. Johnson is a program evaluator for the Engineering Technology Accreditation Commission (ETAC) of the Accreditation Board for Engineering and Technology (ABET). He has chaired the Engineering Technology Division of the American Society for Engineering Education and was instrumental in preparing the University for the Southern Association of Colleges and Schools (SACS) reaccreditation. He has been honored to serve as a Maxine Smith Fellow, a program designed to develop leaders through the Tennessee Board of Regents. He has maintained a research, service and teaching agenda in addition to his role as chair having written several successful grants, articles and book chapters and served on many boards and committees.