



Work in Progress: An Integrative Learning-Centered Advising Experience for First Year Students

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Introduction

This work in progress paper describes a new first-year advising program at the School of Engineering and Computer Science at University of the Pacific, a medium-sized private Western university. This faculty advising program utilizes a learner-centered approach that emphasizes advising as a teaching and learning process.

At our institution, undergraduate advising is mainly conducted by faculty advisors. These advisors initially meet with matriculating advisees at new student orientation in the summer and then once a semester thereafter to discuss courses and career planning. While advising is considered a component of teaching as a part of the promotion and tenure process at our institution, historically the quality of advising as a student learning experience is not evaluated. Methods commonly used to assess teaching quality are not conducted regularly or at all for advising. A thoughtfully crafted teaching philosophy is essential in a dossier, however there is no expectation that it include an advising philosophy. This is likely a consequence of the fact that the effort spent on advising is not recognized in the faculty member's overall workload. As such advisors are unintentionally incentivized to employ transactional advising, focusing on course selection, schedule formation, and curricular planning, to streamline the work of advising.

However, highly engaged and supportive developmental advising during a student's first year is a best practice for promoting student success, persistence, and ultimately graduation rate [1,2]. The interactive teaching process of developmental advising supports students to explore their purpose, clarify their academic and life goals, and develop a personalized educational and career exploration plan to achieve those goals [3-5]. These advising interactions encourage students to practice self-assessment, problem-solving, and decision-making and offer opportunities for help-seeking. First-year students often need considerable support to cultivate these skills. In addition, first year engineering and computer science students frequently struggle with adjusting to the rigor and structure of a college learning environment and thus may need to build their metacognitive skills and self-efficacy beliefs [6-8]. Fostering student development in these areas requires a strong commitment from students and sensitivity, encouragement, personalization, and care from the faculty advisors. This first-year advising program recognizes the significant time investment of these efforts as a part of the faculty advisor's workload and allocates significantly more support for first-year students.

The developmental advising support structures incorporated in our first-year program align closely with a mentorship framework. Nora and Crisp's [9] review of the literature finds that mentoring experiences contain four constructs: psychological or emotional support, goal setting and career paths, academic subject knowledge support, and the existence of a role model. A variety of intensive mentoring programs have been formed at colleges and universities with the aim to promote student success and persistence. The program structures vary based on the primary role of the mentor (staff, faculty, peer, alumni), level of training required of mentors, and the demographics of the mentee population and whether it is guided by a theoretical

framework or research study [10]. We are directing this intensive and targeted mentoring to all our first-year engineering and computer science students because it is well known that student engagement in a college or university is most critical in the first year to enhance retention [1,11]. Additionally, a 2018 Elon University poll of more than 4,000 college graduates found that 77% of students with 10 or more multiple meaningful student-mentor relationships (mentors were defined as faculty or staff) reported that their college experience was “very rewarding” and 60% reported that their most rewarding relationship began in the first year [12,13]. The structure of our first-year advising program ensures that all our students experience at least one meaningful mentor relationship in their first year.

Interactions with faculty outside the classroom are found to promote student success, persistence, and satisfaction with the college experience [14,15]. Additionally, there is a positive relationship between access to faculty mentoring and academic success factors [16] and psychosocial development [17]. Campbell and Campbell [18] found for a faculty-student mentor program for underrepresented students where the interactions averaged a little more than 7 contacts per year or total contact time of 124 min, there was improved academic performance. Mentored students had an 0.2-0.3 higher GPA and were twice as likely to persistence as compared to the matched control group [18]. In a faculty-student mentor program at Texas Tech University, the underrepresented students in the program must check in once per week and meet in person twice per month with a faculty mentor. For students in the faculty-student program, the first-year retention rate is 88% and more than 6% higher than the retention rate for Texas Tech underrepresented students who did not participate in the program [19].

The advising curriculum in the first-year advising program focuses on developmental advising via achievement of advising student learning outcomes (SLOs). Establishing advising SLOs reinforces advising as a learning experience and makes clear the essential knowledge, skills, and cognitive development necessary for students to successfully navigate their college advising experience [20,21]. The advising SLOs were developed by a faculty committee charged by our primary faculty governance body and cover academic and career outcomes across the entire curriculum. The first year advising SLOs span three areas: (i) design a curricular plan, (ii) prepare a future plan, and (iii) assess your learning strategies. These outcomes are summarized in Table 1.

This work in progress paper describes the pilot structure of the first-year advising program and the planned assessment process.

Methods/Project Approach

Six tenured faculty advisors were selected to advise all first-year students (approximately 100 students) across our eight major programs. These experienced advisors demonstrated a commitment to developmental advising and an interest in specializing in advising first-year students. As described in the following section, prior to the start of the advising program, each advisor completed a professional development workshop on self-efficacy and metacognition topics.

Table 1. First Year Advising Student Learning Outcomes

	1st Year, 1st Semester	1st Year, 2nd Semester
Design a Curricular Plan	<ul style="list-style-type: none"> • Explain the learning outcomes and course requirements of General Education (CP1) • Create an academic plan through at least the first year (CP2) 	<ul style="list-style-type: none"> • Express how your selected major aligns with their skills, abilities, and interests (CP3)
Prepare a Future Plan		<ul style="list-style-type: none"> • Develop a resume (FP1)
Assess Your Learning Strategies	<ul style="list-style-type: none"> • Describe effective learning strategies (LS1) • Reflect on your strengths (LS2) • Reflect on your areas for growth (LS3) • Assess their personalized toolkit of effective learning strategies (LS4) • Seek experiences to build learning skills in your areas for growth (LS5) • Appraise your four sources of self-efficacy: mastery experiences, social modeling, social persuasion, physiological and emotional responses (LS6) • Build your self-efficacy skills (LS7) • Learn how you learn <ul style="list-style-type: none"> ○ Plan approach to each learning task (LS8) ○ Monitor understanding and practice other approaches when needed to improve understanding (LS9) ○ Evaluate which strategies were successful and which were not (LS10) 	

Then, advisors in this program allocate a significant amount of time to working with each advisee. They have at least seven individual half-hour meetings with each advisee over the course of the program and dedicate time in advance of some meetings to review their advisee’s metacognition and self-efficacy reflection assignments in order to enhance and personalize the discussion based on the advisee’s assignments and progress. Finally, advisors dedicate some time to assessing students’ achievement of learning outcomes. To recognize and protect the time required to advise students in the program, a course equivalence workload per advisee (a fraction of a course unit) was developed; advising 40 first-year advisees for the academic year was equivalent to teaching a 3-unit semester course in our workload model. Thus, the advising efforts to advise all their first-year advisees is included in overall workload and, critically, recognized as vital teaching contributions to our programs.

The year-long advising program integrates three components: (i) individual faculty advising meetings, (ii) learning modules in our School’s 1-unit “Dean’s Seminar” (similar to a “University 101” or “First Year Experience” course) in the fall semester, and (iii) dedicated career advising programming in the spring semester. A schematic of the schedule of advising program activities is contained in Figure 1. The components’ activities occur in parallel and are intentionally alternately spaced to reinforce and support students to accomplish the first year advising SLOs.

Metacognition Skills and Self-Efficacy Beliefs Workshop

Prior to meeting with students, each advisor completed a three-and-a-half-hour synchronous virtual workshop that was developed and delivered by on-campus experts in self-efficacy and

metacognition. Research has shown that encouraging a student’s metacognition (reflection on one’s learning processes, challenges, and successes) along with developing self-efficacy (domain-specific beliefs in one’s abilities to succeed) resulted in higher academic success and connection with the university [22,23].

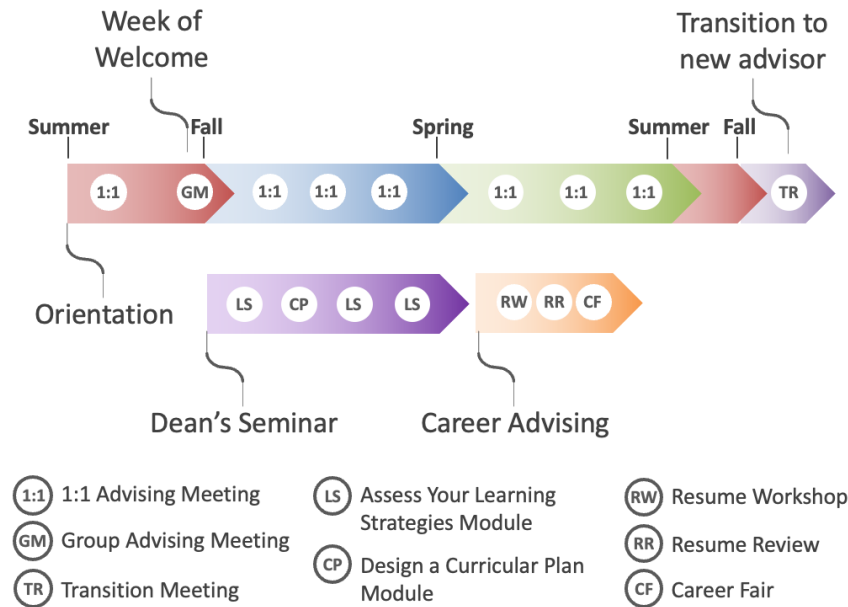


Figure 1. Schedule of first year advising program components: faculty advising meetings, Dean’s Seminar modules, and career advising program.

The session was interactive with opportunities for individual reflection and small group discussion. The facilitators utilized reflection prompts that asked the advisors to recall their learning processes and strategies as undergraduate students and map their assets (experiences, relationships, and feedback) that built their confidence to effectively advise first year students; these allowed the advisors to discover and apply the concepts of metacognition and academic self-efficacy, respectively, to their own experiences. Small group discussion was used to share and brainstorm ideas to generate together a set of effective advising strategies for having conversations with advisees about metacognition and promoting student self-efficacy. These strategies were collected and shared with the participants as a follow up to the workshop. Finally, some time was allocated to explaining the structure and SLO mapping of the three online metacognition and self-efficacy learning modules in the Dean’s Seminar course.

Individual Advising Meetings

Faculty advising meetings are the core of the advising program. Advising meetings are individual meetings that are typically 30 minutes long. The student meets their advisor during summer orientation. The aim of that individual meeting is for the advisor to get to know the student and affirm their fall classes. During welcome week before fall classes, each advisor holds a group advising meeting with all their first-year advisees to build community and share more about the major program.

Three individual advisor meetings are conducted in the fall semester in coordination with the Dean’s Seminar modules. Advising SLOs emphasized in the fall semester are in the categories Design a Curricular Plan (CP2) and Assess Your Learning Strategies (LS1-10). The metacognition skills and self-efficacy beliefs in the Assess Your Learning Strategies SLOs were introduced in the Dean’s Seminar course in three modules (1) Effective Learning Strategies, (2) Learning Beliefs and Goals, and (3) Assess and Adapt. The advisee’s responses and reflection were then discussed in subsequent advising meetings. The mapping of the SLOs is provided in Table 2.

Table 2. Map of advising SLOs covered in the Assess Your Learning Strategies modules.

<p>Module #1: Effective Learning Strategies</p>	<ul style="list-style-type: none"> • Describe effective learning strategies (LS1) • Learn how you learn <ul style="list-style-type: none"> ○ Plan your approach to each learning task (LS8) ○ Monitor your understanding and practice other approaches when needed to improve understanding (LS9) ○ Evaluate which strategies were successful and which were not (LS10) • Assess your personalized toolkit of effective learning strategies (LS4)
<p>Module #2: Learning Beliefs and Goals</p>	<ul style="list-style-type: none"> • Reflect on your strengths (LS2) • Reflect on your areas for growth (LS3) • Seek experiences to build learning skills in areas for growth (LS5) • Appraise your four sources of self-efficacy: mastery experiences, social modeling, social persuasion, physiological and emotional responses (LS6) • Build your self-efficacy skills (LS7)
<p>Module #3: Assess and Adapt</p>	<ul style="list-style-type: none"> • Reflect on your strengths (LS2) • Reflect on your areas for growth (LS3) • Seek experiences to build learning skills in areas for growth (LS5)

The aims of first fall meeting are to support the advisee’s transition including checking on their academic performance, problem-solving any necessary adjustments, and introducing referral resources as needed. In addition, they discuss the advisee’s response to the initial module in the Dean’s Seminar class: Effective Learning Strategies, which requires the creation of a study plan for a written paper or exam, and a cognitive wrapper for that assignment [24]. In the second fall meeting, some time is spent checking in on the advisee’s transition and academic performance, but the emphasis is curricular planning. In addition to confirming the advisee’s spring semester schedule, there is a review of the advisee’s draft curriculum plan of their full degree program. The final fall meeting’s focus is on the advisee’s reflection in their second module: Learning Beliefs and Goals, which explores their motivation, goals, and mindset. The aims of the fall advising meetings are summarized in Table 3.

Three additional individual advisor meetings are conducted in the spring semester. These meetings cover advising SLOs in the categories Design a Curricular Plan and Prepare a Future Plan. As needed advisors will also review the SLOs in the Assess Your Learning Strategies category. The first spring meeting covers similar transition topics as the first fall meeting: checking on their academic performance, problem-solving any necessary adjustments, and discussing referral resources as needed. Additionally, this meeting includes a discussion on the advisee’s reflection on their progress toward their academic goals and plans to adapt in the third module: Assess and Adapt, from the fall Dean’s Seminar course. Finally, they plan how the

advisee will achieve the SLO to develop a resume by the end of the semester; advisors encourage advisee participation in the career advising spring programming to assist them through this process. The second spring meeting covers the advisee’s transition and academic performance, status of creating a resume, confirmation of fall semester courses in the second year and discussion of longer term curricular plan. In the final spring meeting, they discuss opportunities for growth in summer and into the second year and the final curricular SLO to express how their selected major aligns with their skills, abilities, and interests. The aims of the spring advising meetings are summarized in Table 3.

For continuity in the summer, the advisor continues to work with the student if they need summer advising support to promote feelings of belonging to the campus and ultimately support our retention efforts. A final transition meeting together with the new faculty advisor is planned to occur about one month into the start of the second year.

Table 3. Discussion topics for the six advising meetings

		Meeting Aims	Learning Outcomes
FALL	1	Assess Learning: Discuss Effective Learning Strategies module Transition: Check-in on academic performance: problem-solve adjustments: learn about referral resources as needed	LS1,4,8-10
	2	Transition: Check-in on academic performance Curricular Plan: Confirm courses for registration for fall; discuss curricular planning; review plan through first year	CP2
	3	Assess Learning: Discuss Learning Beliefs and Goals module	LS2,3,5-7
SPRING	4	Transition: Check-in on academic performance, problem-solve adjustments, learn about referral resources Assess Learning: Discuss Assess and Adapt module Future Plan: Plan to create and post resume by end of spring	LS2,3,5
	5	Transition: Check-in on academic performance Curricular Plan: Confirm courses for registration for fall; discuss curricular plan for second year Future Plan: Check-in on plan to create and post resume by end of spring	FP1
	6	Future Plan: Discuss how selected major aligns with skills, abilities, and interests Transition: Discuss opportunities for growth in summer and fall semester	CP3

Learning Modules in Dean’s Seminar

Learning modules were developed to introduce students to topics of metacognition and self-efficacy in the Dean’s Seminar course. The modules were developed on the university’s learning management system (LMS) and designed to be copied directly so that students could work through the components without corresponding instruction in class. The seminar instructors then could choose how much to cover in class and how much to assign for independent work. In this pilot, the seminar instructors decided to augment the modules with instruction in class. The three electronic modules were (1) effective learning strategies, (2) learning beliefs and goals, and (3) assess and adapt. In aggregate these cover the Assess Your Learning Strategies advising SLOs.

All new students at our institution receive a free copy of *Teach Yourself How to Learn* by Sandra Yancy McGuire. The modules contain recommended readings from the book. In addition, relevant concepts from the text are summarized and referenced in the modules. Students complete identical surveys at the end of each module that ask them to rate how they feel about their learning goals, their progress towards those goals, their support to meet those goals, and their connection to their program and the institution. This allows us to assess if their academic self-concept and sense of belonging change over the semester.

The Effective Learning Strategies module introduces students to the concept of metacognition and offers them tools to enhance and improve their learning strategies. It consists of a summary of the ten learning strategies presented by McGuire [22] and a reflection on their past learning experiences and strategies. Students also complete an assignment study plan at least a week prior to a graded activity from another course that will be repeated over the semester (e.g., exam, quiz, paper, lab report). After receiving the graded assignment, students complete a cognitive wrapper evaluating their preparation and performance on that assignment and identifying things they would do differently when preparing for the next assignment [24].

In the Learning Beliefs and Goals module, growth mindset [25] and strategies to maintain motivation are introduced. Students complete survey inventories on their mindset, goal orientation, and motivation and follow this with a reflection on their responses. The final module, Assess and Adapt, asks students to reflect on their academic performance, their progress toward their academic goals, and what they would do differently going forward.

Career Advising Programming

In spring semester, advisees are encouraged to participate in a career services program consisting of three components. The first component is a resume workshop to introduce the essential components of a resume so that they can prepare a draft resume. The second component is a group resume review session where they can get feedback on their draft resume before uploading their final version to the university's online recruiting platform. The final component is to participate in the spring career fair. Additionally, students have the option to complete the career fair tour to learn how to navigate a career fair and practice speaking with employers.

To incentivize participation, students who complete all three components are entered into a drawing for prizes. While the main objective is for students to achieve the advising SLO to develop a resume by the end of the semester, this program is also intended to familiarize students with the career services office and staff, the online recruiting platform, and additional career services programming.

Results and Discussion

This is the pilot year of the program. Throughout the year, faculty advisor feedback will be solicited and will inform adjustments for future iterations of the program. Some initial feedback from faculty advisors was collected at the end of the fall semester. Advisors observed that in comparison to previous cohorts of first year students, the pilot advisees more freely sought

advising support for academic and personal concerns. This reach out also occurred earlier in the semester when it was more feasible for the advisee to make meaningful adjustments to recover the semester. Additionally, some noted that weaving in discussion of the advisee's metacognition and self-efficacy reflections allowed for more rich advising conversations.

Advisors also stated some challenges with the structure. Some students missed the third fall meeting. The advisors attributed this to the scheduled timing toward the end of the semester just prior to the Thanksgiving holiday and when significant assignments or exams were coming due. It was suggested instead to have two longer meetings instead of three to avoid this scheduling challenge in future fall semester. Additionally, to accommodate advisors with this concern the meeting schedule for spring was made more flexible. Advisors could opt for two longer meetings in spring if they wished, so long as they planned to cover all the meetings aims for the semester (see Table 3). Some advisors also indicated they did not always cover the intended meeting topics. This either occurred because the student expressed an urgent need and addressing that took priority or because the advisor had difficulty initiating the conversation on the intended topic. For the latter, it was recommended that use of discussion prompts would be beneficial to encourage conversation.

At the conclusion of the pilot year, faculty advisors will be surveyed on their experiences to ascertain the impact of the professional development workshop on their advising interactions. We seek to understand how often they applied the self-efficacy and metacognition training in their interactions with first-year advisees and if a deeper knowledge of these topics supported them to be better advisors. Further, we would like to learn if there was any impact on their other mentorship relationships (undergraduate/graduate research students or teaching assistants).

Planned assessment of the program includes student feedback from surveys and focus groups, degree of participation, student achievement of the SLOs, as well as comparisons of student success data after the first semester and first academic year with past first year cohorts. This would include course completion rates, first-year GPA, persistence, and graduation rate. We anticipate that academic performance and persistence will be improved in the first year due to the emphasis on metacognition and self-efficacy skill-building and would like to see if that pattern continues as they progress in their major programs. We plan to evaluate the efficacy of the first-year advising pilot once the program has been in place three or four years as the first cohort progresses through their major programs.

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