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Work in Progress: Evaluation of 360 Coaching to Support Whole-Student Advising in the First-Year

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Introduction

This Work in Progress paper will describe an initial evaluation of a first-year advising program first implemented in academic year 2021-22 in the engineering school at a medium-sized private (Research I) university – 360 Coaching [1]. The goal of 360 Coaching is to provide whole-student support for our first-year students through holistic mentorship that extends beyond curricular questions and purely academic concerns. In addition to traditional academic advising, 360 Coaching is designed to also support students should they encounter life challenges as they transition to university life – broader mentoring for our first-year students as they begin discovering their individual paths to lifelong personal fulfillment.

Prior to implementing this advising model, first-year students were assigned engineering faculty advisors from the departments in an ad-hoc manner, with slight preference toward matching students with a faculty member in the department that they indicated as their first interest in major in prior to matriculation. (Our internal data has shown that approximately 50% of students do not ultimately major in this initial interest area or they report their initial interest area as "undecided".) Student surveys of satisfaction with advising revealed that first-year advising experiences were uneven. In addition, academic deans and instructors who directly observed first-year students reported that indicators of students' learning skills and confidence, engineering confidence, and resilience, were lower than expected and could be improved. This information, coupled with study results which have shown that a diverse array of factors, including sense of belonging and community, may impact a student's adjustment to college and their subsequent academic success, [2,3], led us to develop an advising program that goes beyond the traditional advising on course selection to satisfy degree requirements to a more holistic approach that aims to help them build a meaningful 4-year experience that leads to a life of fulfillment and purpose – a life in which they have not only information and knowledge, but also the seeds of wisdom to guide their application of that information and knowledge for greater purposes.

The guiding aims of our 360 Coaching program are to: ***develop*** a high-trust relationship with each student through regular, meaningful interactions, ***provide*** students with the tools, information, and knowledge to support a smooth transition to university life, ***support*** students as they navigate through common first-year issues and concerns, ***assist*** students in navigating the complex network of university resources, and ***guide*** students in the exploration and selection of a major and career direction.

360 Coaching builds on the Advising-as-Teaching learner-centered approach to advising at Northwestern University's McCormick School of Engineering and Applied Science [4], and similarly aims to leverage a naturally developing community within our first-semester engineering design course, EGR 101L – Engineering Design and Communication. While many of our 360 Coaches are involved with our first-semester design course as either an instructor or a design team technical mentor, this is not universally true; some of our 360 Coaches are not

involved in our first-semester course. This is a distinction between our 360 Coaching program and Northwestern's Advising-as-Teaching model in which the first-year advisors and the first-year engineering program instructors are one and the same.

Dedicated first-year instructors and advisors, as at Northwestern, were not feasible in our engineering programs however, most notably because our engineering students share a first *semester* engineering design experience, rather than a first year design experience We instead aimed to replicate what we perceived as the most influential and helpful elements of the Northwestern Advising-as-Teaching model – regular, meaningful, interactions between students and their 360 Coach and E-Team (engineering team) peer mentor. Our 360 Coaches may achieve this regular interaction within the context of the first-semester engineering design and communication course (as an instructor or technical mentor) and/or through group activities or individual meetings outside the context of the first-semester course. By including 360 Coaches who have three different levels of engagement with the first-semester course, we have an opportunity for a natural experiment to evaluate the influence of the 360 Coach's involvement in the first-semester course on the student advising experience.

While the focus of this paper is program evaluation based on survey data collected from students near the conclusion of their time as advisees in 360 Coaching, it is helpful to note the 360 Coaching directors continually solicit feedback from the 360 Coaches throughout the academic year as part of bimonthly training meetings, with the final meeting of each semester dedicated to 360 Coach feedback. The feedback from 360 Coaches provides valuable information regarding their own needs, knowledge gaps, lessons learned, and success stories, as well as feedback relayed from their advisees, and informs adaptations to training and support for the 360 Coaches throughout the year.

We are evaluating the efficacy of our 360 Coaching program by eliciting student perspectives through selected questions from four validated survey instruments: a survey of 12 essential advising functions proposed by Smith and Allen [5], 6 of the original 11 statements in a survey of self-efficacy for self-regulated learning proposed by Zimmerman, et al. [6], a 6-statement general engineering self-efficacy survey proposed by Mamaril, et al. [7], and a 6-statement resiliency survey proposed by Smith, et al., that focuses on resilience as, "the ability to bounce back or recover," from challenges [8]. The survey asks students to rate their agreement with the survey statements thinking back to themselves at the start of their first year (i.e., a post-pre self-assessment) and thinking about themselves now, as sophomores (post self-assessment). In addition to evaluating student self-assessment of the degree of students' perceived growth in their engineering self-efficacy, self-efficacy for self-regulated learning, and resilience during their first year, we will also evaluate historical aggregated institutional data regarding engineering school retention to see if there appear to be any changes in retention that took place concurrently with the implementation of 360 Coaching.

A limitation of this evaluation is the lack of a control group of students in the same matriculating cohort who were not advised through 360 Coaching, so we are unable to disambiguate growth attributed to 360 Coaching from growth attributed to completing the first year of an engineering program or other external factors. We will continue to evaluate trends in the coming years to

more fully evaluate the potential impacts of 360 Coaching on our students' first-year advising experience and retention in our engineering program.

Our 360 Coaching evaluation survey protocol for human subjects research is approved by the Duke University Campus Institutional Review Board. All students who were advised within the 360 Coaching advising program during the 2021-22 academic year were invited to share their perspectives via the survey – a subject pool of 378 students. Our initial response rate was very low (~1.3%; 5 respondents). We are unsure if the low response rate is an artifact of the time lag between when students were advised in 360 Coaching (first-year – 2021-22 academic year) and when they are being surveyed sophomore spring – Spring 2023), or if there may be other factors as well. We are revising our recruitment strategy for the Fall 2022 and future matriculating classes with an aim of improving response rates for future iterations of the survey. Although we are cautious about drawing firm conclusions from these survey results due to the very small sample size (N=5), we believe there are early indications students appreciate the opportunity to develop a stronger connection with a faculty advisor early in their university career, and their first-year experiences are supporting growth in their self-efficacies and resilience. Additionally, the analysis detailed below provides a method for implementation in future years with improved response rates.

Evaluation Methods

Our evaluation goals are directly linked to our broad 360 Coaching program goals: to support our students' development as self-reliant, self-actuating, resilient engineers [1]. The evaluation survey of 360 Coaching includes four question groups that focus on student perceptions and self-evaluations:

1) Student perceptions of the extent to which 360 Coaching meets their expectations of an advising program.
2) Student self-evaluations of their self-efficacy for self-regulated learning.
3) Student self-evaluations of their general engineering self-efficacy.
4) Student self-evaluations of their resilience.

It also includes three questions intended to help us understand how student experiences may differ depending on the role of their 360 Coach in our 360 Coaching program and/or their individual identities:

1) The role of their 360 Coach in our first-semester engineering design course (EGR 101L) – instructor, technical mentor, or no formal role.
2) Their self-identification as a member of a historically marginalized gender identity in engineering (e.g., female, transgender, non-binary/non-conforming) – yes, no, or prefer not to answer.
3) Their self-identification as a member of a historically marginalized community in engineering (e.g., person of color, LGBTQIA+, first-generation, low-income) – yes, no, or prefer not to answer.

The survey concludes with two open-response questions to provide students with opportunities to share their perspectives on the primary benefits they experienced from 360 Coaching as well as their suggestions to improve 360 Coaching for future students.

The survey was distributed to the 378 students who were advised within the 360 Coaching program during the 2021-22 academic year and includes students who were in the engineering school for the entire academic year, as well as those who transferred out after the fall semester and those who transferred in for the spring semester. Within this population, 109 students had a 360 Coach who was an EGR 101L (Engineering Design and Communication) instructor, 159 students had a 360 Coach who was an EGR 101L technical mentor, and 110 students had a 360 Coach who had no formal role in the course. To provide a sense of the diversity within our undergraduate student population, approximately 40%-50% of our survey population is anticipated to self-identify as a member of a historically marginalized gender identity (e.g., woman, transgender, non-binary/non-conforming), as these are known demographics of the Fall 2021 matriculating class. We do not have data to help us approximate the proportion of our survey population that is anticipated to self-identify as a member of a historically marginalized community (e.g., person of color, LGBTQIA+, first-generation, low-income). Approximately 53% of the university undergraduate population (arts & sciences and engineering) is non-white and approximately 20% is first-generation and/or low-income. We do not have access to data regarding the percentage of the university undergraduate population who identify as LGBTQIA+.

To mitigate re-identification risk, participant identifiers are coded with a unique survey identifier prior to analysis. In addition, demographic questions are presented with a few broadly categorized demographic descriptors such that any identifying information provided is non-specific. To further reduce re-identification risk we will roll-up any demographic categories with between 1 and 4 participants into broader categories with at least 5 participants.

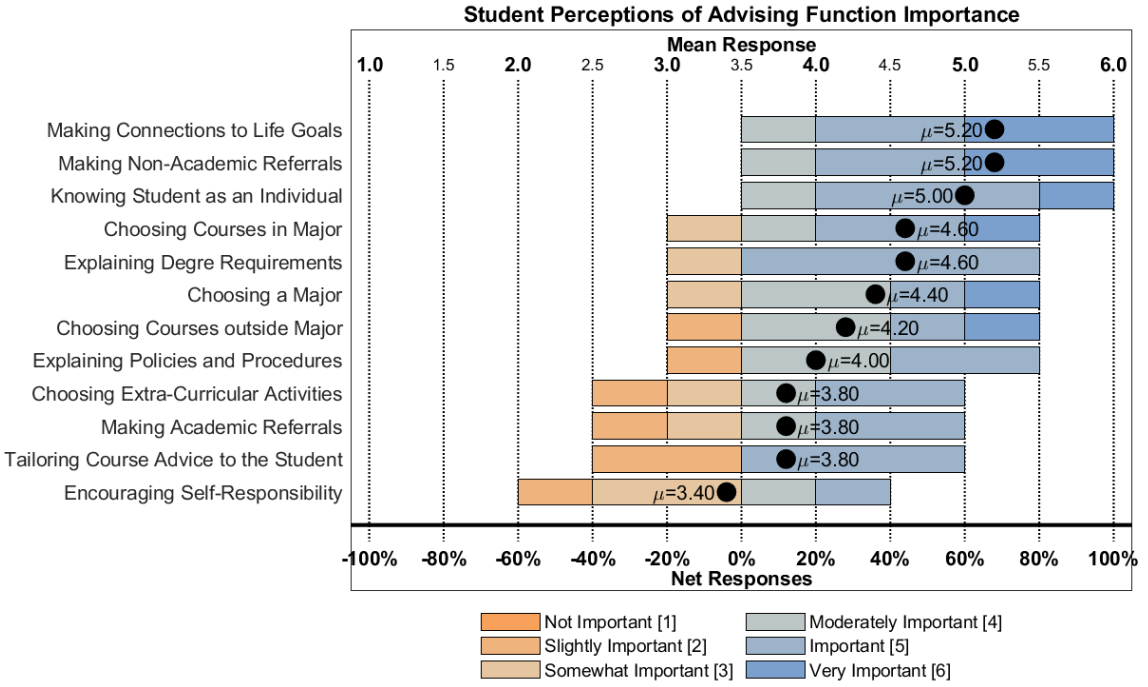
The survey instrument, provided in the Appendix, was previously described by Tantum, *et al*. [1]. Briefly, prior published surveys are leveraged to curate a survey applicable to our desired evaluation of 360 Coaching. To gauge how well students believe 360 Coaching is meeting advising functions they deem important, we have adapted Smith and Allen's survey of 12 essential advising functions [5] to align terminology with that used within our engineering school. [1] The statements chosen to evaluate self-efficacy for self-regulated learning, engineering self-efficacy, and resilience are taken from the surveys published by Zimmerman, et al. [6], Mamaril, et al. [7], and Smith, et al. [8], respectively. The surveys of engineering self-efficacy [7] and resilience [8] are adopted in their entirety, while 6 of the original 11 statements in the survey of self-efficacy for self-regulated learning [6] that are most directly related to our desired evaluation are adapted for our survey. For all three surveys the statements are adapted, when necessary, to better align the terminology in that statement with our engineering programs.

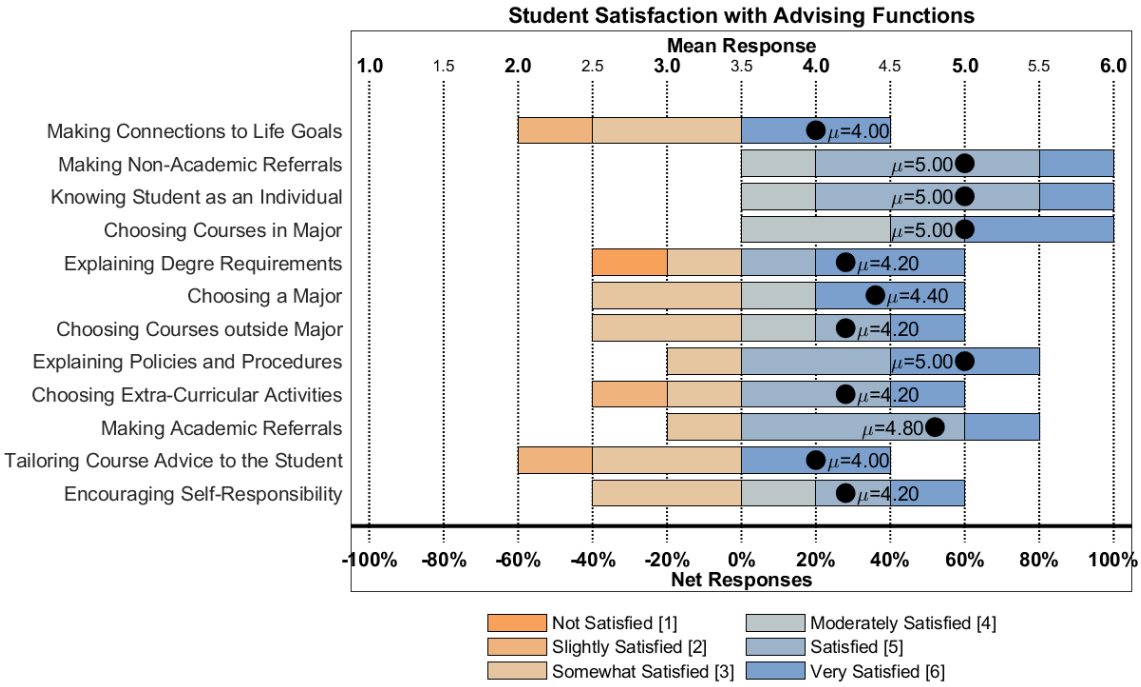
The response options for the 30 scaled statements within the survey are all altered to a 6-point Likert scale to eliminate the "neutral" response option as well as to place all questions/statements on similar response scales. The original surveys were presented on Likert scales with 5 to 7 response options.

It is helpful to note that although the survey presented here is curated from published surveys, this survey has not yet been re-validated for our evaluation goals or with our survey population.

Results and Discussion

Survey results for statements regarding advising functions are presented on the next page as diverging bar plots (net stacked distributions) for each statement individually. The results for importance of and satisfaction with advising functions are presented separately, with the statements presented in descending order of perceived importance by our survey respondents. While these limited data (N=5) do not support drawing firm conclusions, it is interesting to note a few trends. Our survey respondents generally perceive advising functions as important to some degree, with the function of "Encouraging Self-Responsibility" as a notable exception. There is also an interesting trend in that none of the top three advising functions in order of student perception of importance are related to traditional academic curricular advising of choosing courses and ensuring degree requirements will be met; they all relate to bigger picture life-goals and knowing the student as an individual. These results align with a concluding remark in the reference from which the survey statements were drawn, that advisors, "need to tailor their advising strategies to the individuality of the particular student they are advising at the moment." Student perceptions in these survey results appear to underscore the helpfulness of providing advising that is what each student wants/needs, when each student wants/needs it. This supports the notion of designing an advising ecosystem that naturally provides regular interactions between advisors and students, to help the advisors get to know each of the students as well as to create opportunities for the advisor to be present in the moment when a student is open to conversation regarding something they want or need that the advisor can provide.

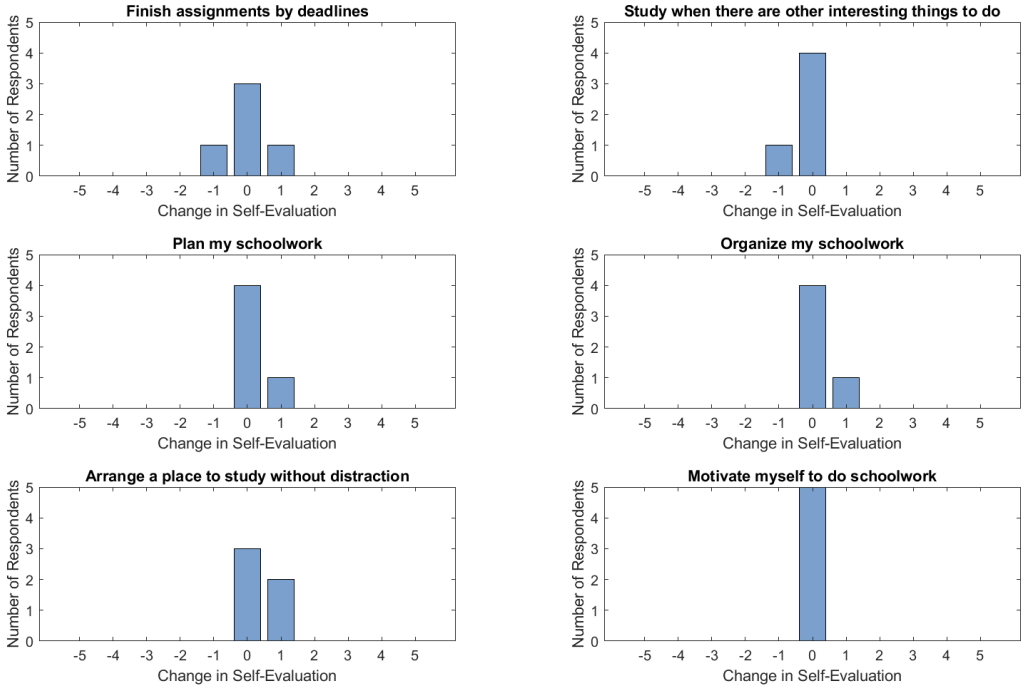




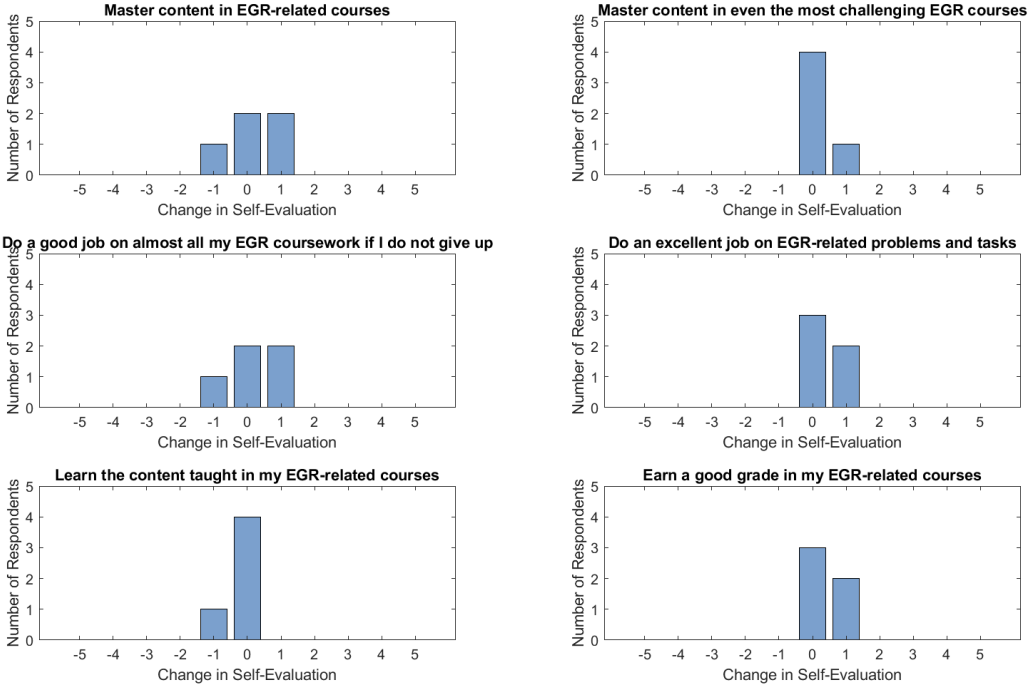
An interesting observation is the advising function that students perceived, on average, as most important, advising that supports "Making Connections with Life Goals," was the advising function with which they were, on average, least satisfied. A limitation of the current survey is it does not explore *why* students perceive an advising function as (un)important or *why* they are (not) satisfied with the advising they received in that dimension. The additional insight which probing questions such as these could provide may help place the differences between perceptions of importance and satisfaction in context.

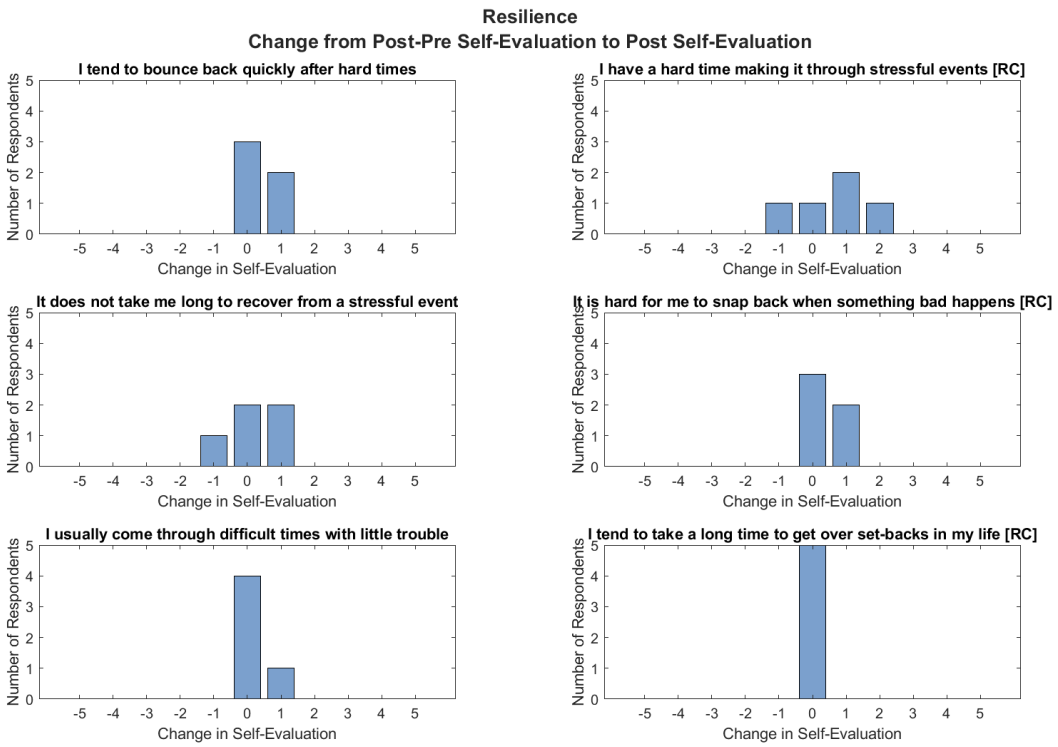
Survey results for self-evaluation of self-efficacy for self-regulated learning, engineering self-efficacy, and resilience are presented as the change in self-evaluation from matriculation to the end of the first-year, as the survey asks each respondent to complete a post-pre-self-assessment and a post-self-assessment. Three of the six statements probing resilience are reverse-coded and are denoted as such by "[RC]" following the statement; the quantitative Likert scale is reversed for these statements. The small number of respondents (N=5) does not support drawing conclusions from statistical analysis through Wilcoxon Signed Rank Tests for differences in the means for each survey statement, so we instead present the data itself. We are unable to present survey results for sub-populations, such as 360 Coach role in EGR 101L (Engineering Design and Communication), student gender identity, or historically marginalized community identity, because we are unable to do so while simultaneously mitigating re-identification risk. Should future surveys for future matriculating classes support disaggregation to evaluate responses across subgroups, we will perform subgroup analysis.

Self-Efficacy for Self-Regulated Learning
Change from Post-Pre Self-Evaluation to Post Self-Evaluation



General Engineering Self-Efficacy
Change from Post-Pre Self-Evaluation to Post Self-Evaluation





Across all three statement groups, the changes from the pre-post self-evaluation to the post self-evaluation are small – no more than a single step on the Likert scale for all but a single response in the resilience group ("I have a hard time making it through stressful events"). The vast majority of changes are neutral, indicating no change (77% of responses for self-efficacy for self-regulated learning, 60% of responses for general engineering self-efficacy, and 60% of responses for resilience), while the majority of the remainder are positive, indicating improvement (17% of responses for self-efficacy for self-regulated learning, 30% of responses for general engineering self-efficacy, and 33% of responses for resilience). Only a small minority of responses were negative, indicating deterioration (7% of responses for self-efficacy for self-regulated learning, 10% of responses for general engineering self-efficacy, and 7% of responses for resilience).

Perhaps most enlightening are sentiments shared through the free response question probing primary benefits of the 360 Coaching program:

> *I was completely new to Duke and had no friends/relations with professors, so getting to know at least one Professor is comforting.*

> *[A primary benefit was] [h]aving someone to talk to about my interests and ask questions to when I needed help or was feeling unsure.*

[W]hat made my 360 Coach experience positive was having multiple opportunities to talk with my advisor; more chances for the advisor to get to know the students, and for the students to get overall guidance in the first year.

Suggestions for future improvements shared similar sentiments regarding fostering opportunities for an advisor-advisee relationship to develop:

Make sure there's plenty of opportunity for 360 Coaches to get to know mentees if they desire a closer relationship.

I think it will be nice if there were more "meetings" as a group (both students and professor) during the first few weeks.

We have also examined retention in our engineering program, to evaluate if there is a change in retention that appears to happen concurrently with the introduction of 360 Coaching. Since 360 Coaching has been in place for only 2 years now, and we currently have evaluation data for only the first cohort (Fall 2021 matriculants), it is difficult to draw firm conclusions. Preliminary trends appear to be moving in a positive direction, however. Over the 9 years preceding the introduction of 360 Coaching, average overall retention into the sophomore year was 85.6% (85.8% for white students and 85.3% for non-white students; we do not have data that allows us to disaggregate by male and non-male students). For the Fall 2021 matriculating cohort, the only cohort advised within 360 Coaching for which we have retention data, the overall retention was 87.2% (89.8% for white students and 85.8% for non-white students). We view the improvement in retention for the inaugural class to experience 360 Coaching in their first year as promising. Not only did overall retention improve for the Fall 2021 matriculating class, but retention for both white and non-white cohorts considered separately also improved, although the improvement was not as large for the non-white cohort.

Although a very small number of students from the Fall 2021 matriculation cohort responded to the survey, there appear to be some promising trends toward 360 Coaching being part of a first-year program that supports maintenance of or growth in resilience, general engineering self-efficacy, and self-efficacy for self-regulated learning. Because we do not have a control group who were not advised with 360 Coaching, however, we are unable to disambiguate the effects of 360 Coaching from the effects of completing the first collegiate year. There also appear to be promising trends toward improved retention into the sophomore year, though only a single year's data for students advised within 360 Coaching is currently available. Retention into the sophomore year will continue to be evaluated as part of a longer longitudinal study.

Future work will seek to better understand the mismatch between advising functions students perceive as important and their satisfaction with those functions through mechanisms such as focus groups and/or interviews, as we anticipate it will be helpful to disambiguate difficulty in meeting high expectations for advising functions students perceive as important from deficient advising in the areas students perceive as important. Future improvements will also seek to address a limitation of the preliminary data collection and analysis presented here – the very small sample of students who responded to the survey. We are working toward improving

response rates for the survey to be conducted for the Fall 2022 matriculation cohort (this year's first-year students) by strengthening messaging surrounding the survey and introducing a small lottery-based compensation for survey participation. (These amendments to the survey protocol are subject to IRB approval.) Additionally, the 360 Coaching program will continue to seek feedback from the 360 Coaches throughout the year and respond to these by considering and implementing improvements.

References

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[8] B. W. Smith, J. Dalen, K. Wiggens, E. Tooley, P. Christopher, and J. Bernard, "The Brief Resilience Scale: Assessing the Ability to Bounce Back." International Journal of Behavioral Medicine, vol. 15, no. 3, pp. 194—200, 2008.

Appendix A: Survey Instrument

Part 1: Please read the following 12 statements regarding advising functions and select the most relevant response option from the 6-point scale in the drop-down box to indicate:

1) how important each advising function is to you, and
2) how satisfied are you with 360 Coaching on each advising function.

Notes (not presented to survey participants): Statements are presented in a random order. The 6 drop-down response options for Importance are: [1] Not important, [2] Slightly important, [3] Somewhat important, [4] Moderately important, [5] Important, [6] Very important. The 6 drop-down response options for Satisfaction are: [1] Not satisfied, [2] Slightly satisfied, [3] Somewhat satisfied, [4] Moderately satisfied, [5] Satisfied, [6] Very satisfied.

Advising Function	Importance	Satisfaction
1) Advising that helps students connect their academic, career, and life goals.	<6-option drop-down>	<6-option drop-down>
2) Advising that helps students choose among courses in the major that connect their academic, career, and life goals.	<6-option drop-down>	<6-option drop-down>
3) Advising that helps students choose among courses outside the major (e.g., social science/humanities and general electives) that connect their academic, career, and life goals.	<6-option drop-down>	<6-option drop-down>
4) Advising that assists students with deciding which engineering major to pursue to connect their academic, career, and life goals.	<6-option drop-down>	<6-option drop-down>
5) Advising that assists students with choosing out-of-class activities (e.g., part-time employment, internships or practicum, participation in clubs or organizations) that connect their academic, career, and life goals.	<6-option drop-down>	<6-option drop-down>
6) When students need it, referral to campus resources that address academic problems (e.g., math or science tutoring, writing, disability accommodation, testing anxiety).	<6-option drop-down>	<6-option drop-down>
7) When students need it, referral to campus resources that address nonacademic problems (e.g., family responsibilities, financial, physical and mental health).	<6-option drop-down>	<6-option drop-down>
8) Assisting students with understanding how things work at this university (understanding time lines, policies, and procedures with regard to registration, financial aid, grading, graduation, petitions, and appeals, etc.).	<6-option drop-down>	<6-option drop-down>
9) Ability to give students accurate information about degree requirements.	<6-option drop-down>	<6-option drop-down>
10) Taking into account students' skills, abilities, and interests in helping them choose courses.	<6-option drop-down>	<6-option drop-down>
11) Knowing the student as an individual.	<6-option drop-down>	<6-option drop-down>
12) Encouraging students to assume responsibility for their education by helping them develop planning, problem-solving, and decision-making skills.	<6-option drop-down>	<6-option drop-down>

Part 2: Please read the following 18 statements regarding self-efficacy and resilience, and select the most relevant response option from the 6-point scale in the drop-down box to indicate the extent you agree with each statement with respect to:

1) where you were at the beginning of your Duke career (September 2021), and
2) where you are now after completing your first year at Duke.

Notes (not presented to survey participants): Statements are presented in a random order. Topic identification in square brackets is not be presented to participants. The 6 drop-down response options are: [1] Completely disagree, [2] Mostly disagree, [3] Slightly disagree, [4] Slightly agree, [5] Mostly agree, [6] Completely agree.

Self-Efficacy or Resilience Aspect	Beginning of Duke career	Now
1) I can finish assignments by deadlines. [Self-efficacy for self-regulated learning]	<6-option drop-down>	<6-option drop-down>
2) I can study when there are other interesting things to do. [Self-efficacy for self-regulated learning]	<6-option drop-down>	<6-option drop-down>
3) I can plan my schoolwork. [Self-efficacy for self-regulated learning]	<6-option drop-down>	<6-option drop-down>
4) I can organize my schoolwork. [Self-efficacy for self-regulated learning]	<6-option drop-down>	<6-option drop-down>
5) I can arrange a place to study without distractions. [Self-efficacy for self-regulated learning]	<6-option drop-down>	<6-option drop-down>
6) I can motivate myself to do schoolwork. [Self-efficacy for self-regulated learning]	<6-option drop-down>	<6-option drop-down>
7) I can master the content in the engineering-related courses. [Engineering self-efficacy]	<6-option drop-down>	<6-option drop-down>
8) I can master the content in even the most challenging engineering courses if I try. [Engineering self-efficacy]	<6-option drop-down>	<6-option drop-down>
9) I can do a good job on almost all my engineering coursework if I do not give up. [Engineering self-efficacy]	<6-option drop-down>	<6-option drop-down>
10) I can do an excellent job on engineering-related problems and tasks. [Engineering self-efficacy]	<6-option drop-down>	<6-option drop-down>
11) I can learn the content taught in my engineering-related courses. [Engineering self-efficacy]	<6-option drop-down>	<6-option drop-down>
12) I can earn a good grade in my engineering-related courses. [Engineering self-efficacy]	<6-option drop-down>	<6-option drop-down>
13) I tend to bounce back quickly after hard times. [Resilience]	<6-option drop-down>	<6-option drop-down>
14) I have a hard time making it through stressful events. [Resilience; Reverse-coded]	<6-option drop-down>	<6-option drop-down>
15) It does not take me long to recover from a stressful event. [Resilience]	<6-option drop-down>	<6-option drop-down>
16) It is hard for me to snap back when something bad happens. [Resilience; Reverse-coded]	<6-option drop-down>	<6-option drop-down>
17) I usually come through difficult times with little trouble. [Resilience]	<6-option drop-down>	<6-option drop-down>
18) I tend to take a long time to get over set-backs in my life. [Resilience; Reverse-coded]	<6-option drop-down>	<6-option drop-down>

Part 3:

1) Knowledge of your 360 Coach's role in EGR 101L will help us understand how your 360 Caoch's role in EGR 101L may have influenced your first-year advising experience.

   What was the role of your 360 Coach in EGR 101L? [multiple choice]
   - EGR 101L Instructor
     (*360 Coaches listed by name*)
   - EGR 101L Technical Mentor
     (*360 Coaches listed by name*)
   - No formal role in EGR 101L
     (*360 Coaches listed by name*)

2) Knowledge of your self-identification of your status as a member of a historically marginalized gender identity will help us understand how the experiences of students who identify as members of communities that have been historically marginalized in engineering may differ from students who do not identify as members of historically marginalized communities in engineering.

   Do you identify as a member of a historically marginalized gender identity (e.g., female, transgender, non-binary/non-conforming)? [multiple choice]
   - Yes
   - No
   - Prefer to not answer

3) Knowledge of your self-identification of your status as a member of a historically marginalized community will help us understand how the experiences of students who identify as members of communities that have been historically marginalized in engineering may differ from students who do not identify as members of historically marginalized communities in engineering.

   Do you identify as a member of a historically marginalized community (e.g., person of color, LGBTQIA+, first-generation, low-income)? [multiple choice]
   - Yes
   - No
   - Prefer to not answer

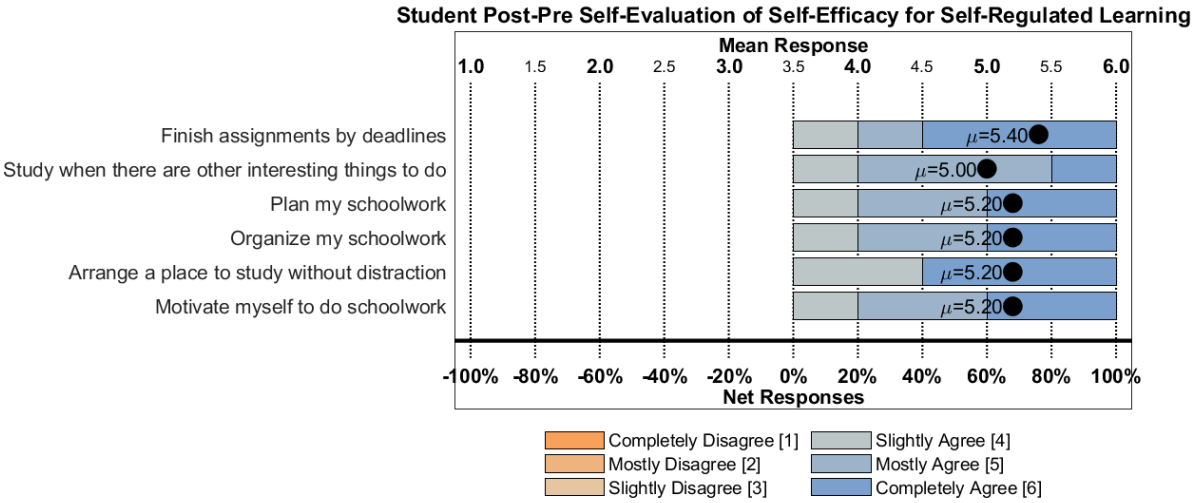
4) What were the primary benefits to you of your 360 Coaching experiences? [text box]

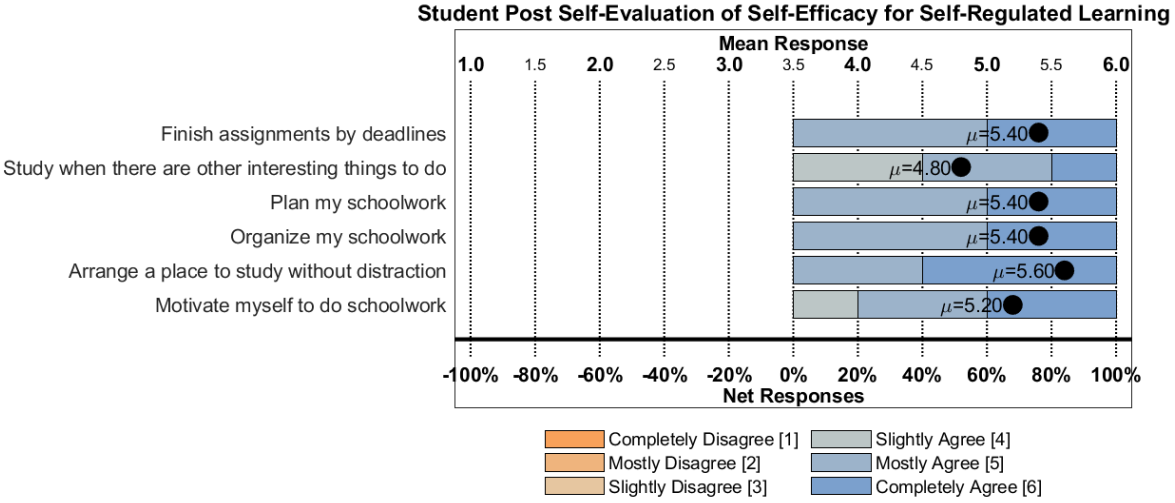
5) What are your suggestions to improve 360 Coaching for future students? [text box]

Appendix B: Self-Efficacy and Resilience Post-Pre and Post Self-Evaluation Data

Statements Probing Self-Evaluation of Self-Efficacy for Self-Regulated Learning

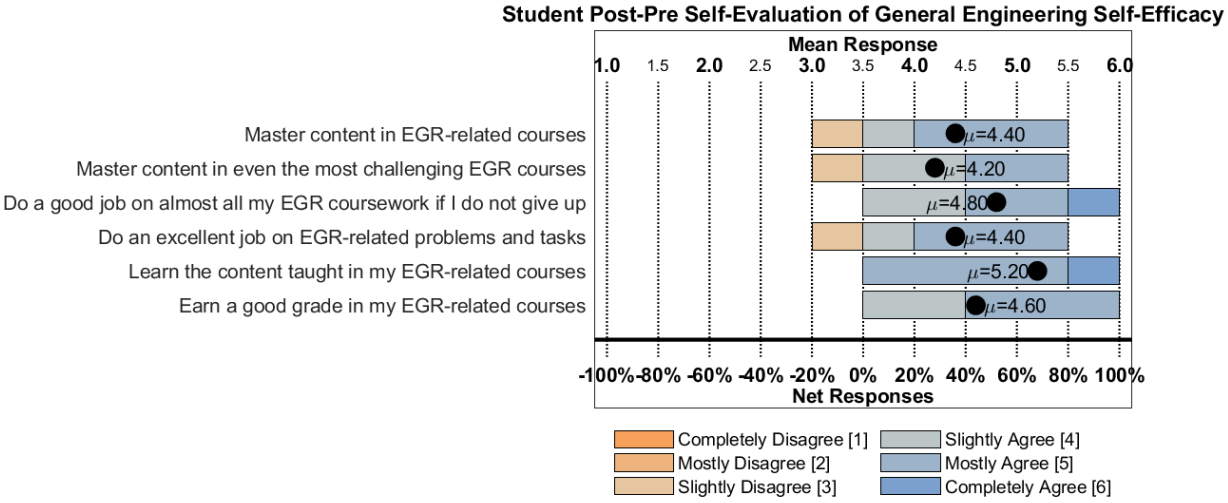
Survey results for statements regarding self-evaluation of self-efficacy for self-regulated learning are presented as diverging bar plots (net stacked distributions) for each statement individually. The results for post-pre self-evaluation and post self-evaluation are presented separately. The results for differences from post-pre self-evaluation to post self-evaluation for each statement are presented in the body of this paper.

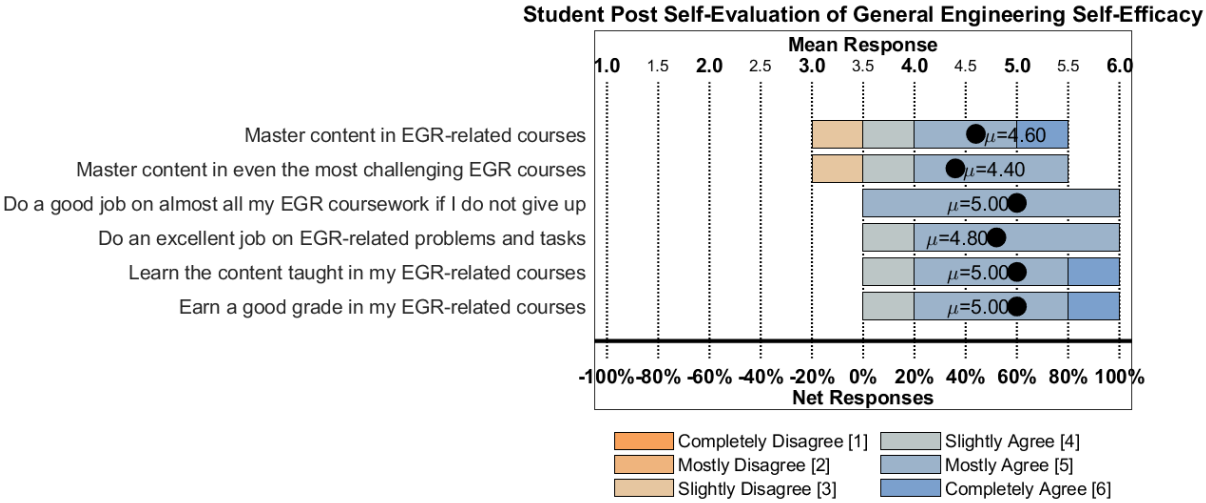




Statements Probing Self-Evaluation of General Engineering Self-Efficacy

Survey results for statements regarding self-evaluation of general engineering self-efficacy are presented as diverging bar plots (net stacked distributions) for each statement individually. The results for post-pre self-evaluation and post self-evaluation are presented separately. The results for differences from post-pre self-evaluation to post self-evaluation for each statement are presented in the body of this paper.





Statements Probing Self-Evaluation of Resilience

Survey results for statements regarding self-evaluation of resilience are presented as diverging bar plots (net stacked distributions) for each statement individually. The results for post-pre self-evaluation and post self-evaluation are presented separately. The results for differences from post-pre self-evaluation to post self-evaluation for each statement are presented in the body of this paper.