Changing the Advising Model

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Abstract
This work-in-progress paper describes the work Northwestern University’s School of Engineering is doing to implement change in how first-year students are advised. Northwestern University’s McCormick School of Engineering and Applied Science, McCormick, wanted to provide consistent advising to the incoming class, opportunities for students to feel a sense of belonging within the school, and help to students develop the skills required to become self-reliant, resilient, and successful University graduates. The McCormick Administration decided to build an advising model based on a learner-centered concept sometimes called the Advising-as-Teaching paradigm.

Traditionally, First-Year students at Northwestern University were assigned to a faculty adviser, in a department based on their stated intended major. Undeclared students were randomly assigned to a faculty member. This advising model gave incoming students a home department, but not necessarily the department undeclared students wanted. In addition, students that changed majors, or were exploring majors, often needed to find their own connections with faculty in other departments. Lastly, in addition to helping students new to the university, higher education, and Engineering, faculty were tasked with teaching, building and managing research programs, advising graduate students, publishing and making progress towards promotion and tenure. While the adviser-training gave faculty the tools to help students build a schedule, many faculty had little time to actually engage and advise undergraduate students. Many faculty were not fully engaging students. Faculty advising across McCormick departments led to uneven advising for First-Year students.

Under the new model, McCormick Advisers are tasked with academic advising and teaching. This 55/45 split in duties means the Advisers are more focused on the task of advising incoming classes. In exchange, McCormick Advisers advise each class through its first year. McCormick Advisers are also co-located in a suite. This office arrangement, along with a narrow focus, are able to collaborate on advising and mentoring students.

Outcomes of the model should come in the form of increased student satisfaction with academic advising, increased awareness of and participation in academic programs such as Study Abroad, Exchange and Co-ops Programs, and the Engineering School. The success of the advising change will be measured in multiple ways. Students will participate in both summative and formative assessment activities throughout the academic year. This assessment will be conducted by Student Affairs as part of the First-Year Seminar. Additional assessment will be conducted by the Engineering School. Students will be given an opportunity to participate in an Advising Survey. In past years, sophomore and senior students were surveyed. Starting this year, all students will be given an advising survey. The University will continue its satisfaction survey as well.
This paper will explore the intended and unintended consequences of changing the advising model for First-Year Engineering students at McCormick.

**Introduction**

Due to lackluster reviews of the First-Year advising system, McCormick Administration decided to change the process. As part of the Senior Exit Survey and Sophomore Satisfaction Surveys, McCormick Students are asked to rate the advising services they received. Prior to 2013, Advising was provided exclusively by faculty across departments. Under this system, students expressed varying levels of satisfaction with the advising they received. In particular, the Sophomore Satisfaction Survey indicated students were strongly dissatisfied with First-Year advising. Under the old advising system, no overarching theory was used to guide the advising of First-Year engineering students—each faculty adviser was free to approach their advising responsibilities as he or she saw fit. With the introduction of a new First-Year advising initiative, came the opportunity to implement proven ideas on First-Year advising. Four new faculty were hired as First-Year advisers, in addition to teaching introductory engineering courses. The Advising-as-Teaching model guided the implementation of the changes to advising and introduce new advising services. In the developmental view of Advising-as-Teaching, both the adviser and student have a responsibility to actively engage in the advising tasks. For this model to work, the adviser and student must take time to discuss their working relationship so as to avoid conflicts arising from different expectations of advising (Crookston, 1994). First-Year advisers with larger numbers of students can find it difficult to build these relationships because their knowledge of the students is typically limited to high school transcripts, test scores, and demographics. In response, some advisers have turned to online student surveys to learn more about their goals and approaches to their education (Smith, 2006). McCormick uses several online tools to help in advising. These tools will be discussed later.

**Background**

According to Creamer, there are no theories of advising, but there are several theories within education and social science that influence advising (Williams, 2012). In implementing changes to First-Year advising in McCormick, there is an on-going discussion about what type of advising approaches exist, what should be used, and when different approaches are appropriate.

There are several advising approaches McCormick considered. In discussing what approaches would best fit the goals of McCormick Advising, several were discussed—Advising-as-Teaching, Developmental, Intrusive, Prescriptive and Social Constructivism. Each of these approaches has merit, and is used in various situations by McCormick advisers and others at Northwestern University.

Intrusive Advising is an advising approach to help motivate students to seek help (Earl, 1987). This advising approach is meant to help at-risk students. Intrusive Advising differs from Prescriptive Advising in that the adviser is taking the initiative to engage students that are having problems, and may not know how to get help.
Developmental Advising is a partnership approach. Both student and adviser are responsible for educational discovery. The adviser and student are responsible for the educational experience of the student. This means the student has to be willing to articulate her goals, and the adviser has to be willing to help the student determine her goals, then help the student find answers to her questions. Advisers in this model do not have to know all the answers, and may learn new information from the students.

Advising-as-Teaching is an approach to advising that challenges students to explore their options and take risks (Hughes, 2014). Advising-as-Teaching is a form of Developmental Advising, in that students and faculty are partners in the student’s educational experience (Missouri State, 2015). The adviser assumes the role of a guide, helping the student determine her direction (educational goals), then helping set the student on her path. While Development Advising focuses more on personal growth, Advising-as-Teaching seeks to enhance student learning.

Prescriptive Advising is defined as a linear form of communicating and advising. The adviser gives the student information and the student acts on the information. This advising approach places responsibility for finding answers to specific student questions on the adviser and the student is responsible for acting on that advice (Frost, 2012). This approach to advising assumes that the adviser has all the answers, and that students know what questions to ask. This approach to advising focuses mainly on the course requirements to earn a degree (Hughes 2014). Prescriptive Advising is sometimes used when students are following up on something that was previously discussed. Prescriptive Advising is also used in group advising sessions. The goal of group advising is to communicate the basic information students need to start prepare their study plans.

Social Constructivism is an advising approach that is based on the concept that learners build (or construct) knowledge based on what they already know or believe. In a Social Constructivist approach to advising, the adviser takes time to understand what a student already knows, or believes, about their educational experience, and helps the student build on that knowledge. In this approach, the student can seek out knowledge from multiple sources, and verify what he thinks he knows with his adviser.

Each of these advising approaches is used within Northwestern University to help advise students at different stages in their academic experience. When these approaches are used will be discussed in more detail.

**Old Advising Model**

Prior to the Fall of 2013, all McCormick undergraduate and graduate students were advised by faculty. Students were assigned an adviser based on intended major. Undeclared students were assigned at random to faculty.

All students had an adviser, but may not have had an adviser who was able to help them explore their major interests or know what resources were available to help students choose a major. In
addition, advisers were also expected to help students find information on other academic programs outside of their major and department, such as Study Abroad, second degrees/majors, minors and certificates. Therefore, many advisers were not able to provide the support students need.

Faculty are tasked with teaching Undergraduate and/or Graduate classes, pursuing research programs, advising and mentoring graduate students and serving on Departmental, School and University Committees. Some faculty felt they were not able to keep up with their responsibilities as well as advise. Under this model, too many students and faculty were not satisfied with First-Year advising.

**New Advising Model (McCormick Advising & Mentoring System)**

McCormick decided that the advising requirements needed to provide more support for First-Year students, compared with the rest of the undergraduate population in McCormick. Therefore, McCormick created a different advising model for First-Year students. The decision was made to move from a prescriptive model to a developmental model.

**Structure**

The advising model, as envisioned by the McCormick Administration can be broken into two major components: People and Technology. Each major component is broken down into smaller components. Figure 1 describes how the new model would support students during their first year.

![Figure 1 Proposed Student Support Network for First-Year Students](image-url)
The two strongest influencers of students during the first year are advisers and peers. With this in mind, McCormick decided to hire four advisers that also taught classes in the First-Year sequence. This decision was key in developing a Advising-as-Teaching Model. The advisers teach sections of Design, Thinking and Communications I and II, the Cornerstone Design classes, departmental service classes, or Engineering Problem Solving classes. The goal is to get the advisers in front of the students in either First-Year, Basic Engineering, or Departmental Core Classes. While it would have been easier to hire professional advisers, but the administration thought the advisers would have more credibility if students interacted with them as professors.

As students progress through their degree requirements, the First-Year advisers become less influential, and other people become more influential as envisioned in Figure 2. The goal is for the advisers to continue to be a part of the students' networks and be available if students need help, albeit with a smaller role.

**People Component**

As shown in the previous two figures, McCormick advisers are one of several people identified as essential components to the new advising model. After students’ first year, faculty members from various departments advise the students through their remaining three years at Northwestern. Faculty advisers are assigned to students early in the Spring Term, based on student major and departmental rotation. Moreover, McCormick students can rely on Personal Counselors in the
Office of Personal Development. These counselors help students that may need more in-depth advising to help them recover from personal and academic difficulties. Students are also assigned to Career Advisers based on major; these advisers work in the Employment Office. They help students plan their job search and academic plans for students on Co-ops. The Alumni Network is involved in various ways - through Employment and Dean’s Offices. Each of these groups plays a vital role in providing guidance to students.

McCormick Advisers
McCormick hired four advisers to engage the First-Year class. The advisers are tasked with the following:

- Help first-year students with their academic planning and major selection, and stay with them throughout their undergraduate careers
- Teach three classes (Cornerstone Design, Engineering Problem Solving, or Departmental Classes)
- Serve as a resource for faculty advisers for outside electives, special programs, and more
- Work together to assure that students interested in all majors are well served

In addition to the above tasks, this new group of advisers developed the processes and procedures for advising in the model. The advisers also found the appropriate university resources to help McCormick students.

The advisers have a dual role within the model, which is what separates McCormick’s advisers from professional advisers. The advisers are expected to teach as well as advise. While other institutions require their advisers to teach orientation classes, McCormick expects the advisers to teach cornerstone, service, and basic engineering classes. These classes are credited and required classes for degrees in the institution.

The advisers are PhDs from various engineering majors. As such, they had to develop basic knowledge about all majors. The advisers used existing information and cross-trained each other on the basic requirements for each major. The biggest challenge for the advisers has been developing the tools to help students pick a major. In the old model, some advisers were very helpful and knowledgeable if students were choosing the adviser’s major, but knew very little about other majors. McCormick’s advisers are expected to be able to help students find the resources to choose a major in all departments.

Comparative Model
The advising load for the McCormick advisers was targeted at approximately 100 students per adviser. This is below the advising load for the Weinberg School of Arts and Sciences, Weinberg, which is approximately 250 students per adviser. While Weinberg Advisers have a higher advising load, their teaching load is lighter. In addition, Weinberg has two sets of advisers—advisers that advise students their first quarter, and advisers that advise the class Winter and Spring Quarter.
First-Year students in Weinberg are enrolled in a First Year Seminar, with their advisers as instructors. Because the students know they have class with their First-Year advisers, the course creates an atmosphere in which students get to know their advisers as faculty. This process encourages students to seek out their advisers for help and advice. Students transition to their permanent adviser after their first term. Weinberg also wants to use Advising-as-Teaching as its primary advising approach, but the school's advising policy is to encourage, but not require, students to meet with their advisers every quarter. The result is a hybrid Teaching-as-Advising/Social Constructivist model, in which students get a lot of information from departmental websites, university catalog, faculty within their majors, their advisers, and other students.

Like their counterparts in Weinberg, McCormick Advisers work in an advising model that is a hybrid Advising-as-Teaching/Social Constructivist model. The model is primarily Advising-as-Teaching, but with the assistance of Peer Advisers, it includes a Social Constructivist contribution.

**Peer Advisers**
Peer Advisers serve a special role in the new advising model. The Peer Advisers become a big part of the students’ Peer Network. The Peer Advisers are recruited, selected and trained by New Student and Family Programs, a division of Student Affairs. Their role is to help guide the students to university resources, and help them normalize their experiences. The Peer Advisers use social events and group discussion to meet these goals. The discussion content is chosen and developed by Student Affairs and McCormick Advisers. The content includes Stress Management, Major Selection, StrengthsQuest, and Learning Styles. In addition, the Peer Advisers have the latitude to change the discussion content based on student concerns in a given week. For example, On Your Mind cards are used at the beginning of each discussion session to uncover topics the majority of the class finds stressful. In some cases, a Peer Adviser may save the scheduled discussion topic for a later session, and spend the 50-minute session leading a discussion about whether dropping a class is a good idea. Discussion sessions are not scheduled for every week; although, some Peer Advisers meet weekly with their groups. In addition, some Peer Advisers arrange to meet their groups for dinner, then a study session afterwards. Peer Advisers are encouraged to meet with their groups outside of discussions, but it is not required.

The Peer Advisers use Social Constructivism to advise students. The McCormick advisers sometimes get important feedback from Peer Advisers about students who may be under extreme stress, or having problems with classes.

**Faculty Advisers**
With the changes to First-Year advising, McCormick also altered how faculty advisers are chosen for Upperclass students. As part of the new advising model, all advisers are rated by their students annually, with the goal being to help the school and departments select faculty that are good advisers, and help faculty improve their advising. Faculty advisers are expected to formally meet with their student advisees in their department once a term to discuss and approve student study plans prior to registration. Students may have to change faculty advisers if they
choose a different academic concentration or major. Most faculty advisers engage students using developmental advising.

**Personal Development Counselors**

Students in need of more intrusive advising work with the Personal Development Counselors. The Office of Personal Development was established several years ago to provide students with a small group of trained counselors that help students dealing with academic and personal challenges. These challenges include those associated with academic probation, dropping or withdrawing from classes, and medical, personal, and military leaves. The counselors use intrusive advising to help students make the best decisions for them. The counselors also attempt to teach students to be more resilient and realistic in their approach to their academics. Lastly, Personal Development counsels students on leave as they work through their options for returning to continue their education.

**Alumni Network**

Another important resource for McCormick students is the Alumni Network. The Alumni Network is in the process of developing a Mentoring program for students. This program is scheduled to start during the 2016-2017 academic year. While the Alumni Network is developing a formal program, its members have been involved in several university initiatives targeting students. For example, the NEXT Program is a one to two day job shadowing opportunity which pairs students with alumni. Approximately 700 students participate annually in that program annually.

**Technology Component**

Since the McCormick Advisers are expected to advise approximately 100 students, online advising tools are exceptionally important. Current students need access to information on their academic progress and other academic resources. Incoming students need access advising and placement information and tools. The McCormick Information Technology department has been essential in developing advising tools. A few tools were identified for development-- Online Degree Audit, Advising System, and Advising and Mentoring.

**Online Degree Audit and Advising System**

Advising and degree auditing tools are essential tools. Before 2014, degree audits were still being keep in paper files. As students filed for graduation, their degree audits and graduation petitions required physical signatures. In contrast, incoming students had links to Math, Chemistry, and other placement tests in emails, and urls in new student publications and emails. The two tools were merged into one advising system--The McCormick Advising System (MAS), giving incoming students access to online pre-advising and placement tools while giving current students access to advising and degree audit tools.

With approximately 2,000 undergraduate students enrolling every year, it is important to give students access to online placement tests and pre-advising tools. The advisers in Weinberg have
used a tool called Dossier since 2011. Dossier is an online pre-advising tool that allows advisers to gather information about incoming students from their applications, standardized tests, Advanced Placement scores, and directly from the students. This information is gathered to help the Weinberg Advisers begin to advise students before they arrive on campus. The Weinberg Advisers demonstrated how they used Dossier, and a version of it was adapted for McCormick for use with incoming students. Several features were added and Dossier became an online pre-advising tool for McCormick advisers and incoming students to use to develop Fall Quarter schedules. Students are able to take Math and Chemistry Placement exams by following links to those exams. The Math Placement results are automatically available as a recommendation for a starting Math Class. The Chemistry results are compiled by the Chemistry Department, and emailed to advisers throughout Northwestern during the first week in August. ALEKS results are immediately available to the students. Starting during the 2016-2017 year, students will also have access to language placement exams as well.

![McCormick Advising System](image)

Figure 3: McCormick Advising System

McCormick advisers are able to use the information provided from the institution and incoming students to advise them on the Fall Term schedule, as shown in Figure 3, with the goal being to have as few individual advising appointments during orientation as possible. Once a student completes their profile in Dossier, their adviser contacts them via phone, email, or Skype. Local
students have the option to meet face-to-face during the summer. Students that elect to pursue dual degrees, double majors and other special academic programs, Typically these students need an advising appointment. For everyone else, the use of Dossier and MAS, coupled with an electronic advising meeting is usually enough to get them ready to register for Fall Quarter classes. All students participate in group advising during orientation.

Current students use the degree auditing portion of MAS. Figure 4 shows a real-time degree audit of past and current classes, and an electronic study plan for registration. Students and advisers are able to use this tool to discuss classes and student plans for the coming term. McCormick enforces its policy that students meet with their advisers once a term by placing an advising hold on registration for students who have not met with their advisers. Advisers have to approve student schedules in MAS; otherwise students cannot register until their schedules are approved. MAS can be used to plan out multiple terms. This tool is now also used for graduation requests.
Lightboard
Another technology component is the Lightboard. The Lightboard is used to create a series of videos to cover commonly asked questions, such as how to choose first year classes, as shown in Figure 5, major selection, and registration. These videos were then posted on the school’s website and social media pages.

The Lightboard is a video recording studio; the centerpiece is a chalkboard-sized pane of glass that a presenter can write on with fluorescent markers while maintaining eye-contact with the camera through the glass. The markers glow brightly because the glass is illuminated from the edges. Electronic media, such as presentation slides, can be merged on-the-fly and almost no video editing is required. Lightboard videos can therefore be recorded and then immediately uploaded to an online site for distribution to students. (Birdwell, 2015)

Figure 5  A first-year advisor explaining a typical course-load during the freshman year.

First Year Experience
In developing parts of the advising model, the advisers consulted with their peers in Student Affairs. Northwestern’s New Student & Family Programs Office (NSFP) is tasked with developing programming to help students make the transition to the institution. NSFP trialed a First Year seminar for about 25 percent of the incoming class in 2013. This pilot led to a collaborative trial that included all First-Year students from McCormick.

The First-Year Experience (FYE) utilizes the Social Constructivist approach. Social Constructivism is loosely defined as people coming from a common society that values social interaction in decision making. While McCormick’s students do not come from a common culture, they are now
part of a common educational experience. Unlike students in other schools, students in McCormick have a common first year curriculum (Math, Science, Cornerstone Design, Engineering Problem Solving) and common transition issues. FYE seeks to use the small group seminars to help students normalize their experience, build a social network around academics, and develop beneficial relationships with upper-class McCormick students and instructors from across the institution.

**Intended and Unintended Consequences**
It has been three years since the transition to the current First-Year Advising model, and some intended and unintended consequences are becoming evident.

Some students are forming friendships and study groups within their Peer Adviser cohort. This is an important step in students integrating into the McCormick community. Students forming friendships and student group is a major goal of the change in advising. Forming student cohorts around a major, with a Peer Adviser has been very helpful for some students. Having a network of friends is important in helping students normalize their experiences. This is also helpful in forming study groups. Students know each other, and have people they can study with before major exams.

Peer Advisers are helping uncover problems early. The Peer advisers are helping students normalize their experiences—especially the stress students feel during their first round of Midterm exams. To hear an upperclass student talk about the stress they felt (and feel) during Midterms allows new students to understand that they are not alone in feeling anxious during exam times. Peer Advisers contact McCormick Advisers if they are concerned about a student missing FYE sessions, or exhibiting behavior that may require help or intrusive advising.

McCormick Advisers understand the curricular requirements for all McCormick majors. Students that are trying to decide between two or more majors have an adviser that can help guide them towards study plans that allow them to keep their options open while they decide between majors. Advisers are also sending students to faculty in departments to discuss majors.

McCormick Advisers are also aware of resources and some major requirements outside of McCormick. There are dozens of Majors, Minors and Certificate programs outside of McCormick. McCormick Advisers are currently working with advisers in four other Northwestern schools to accommodate Dual Degree Programs.

While there are several intended consequences of moving to the current advising model, there have only been a few unintended consequences associated with the switch. The largest unintended consequence has been in the introduction of Group advising sessions. While other faculty only need a week to advise their students, the McCormick Advisers need five weeks. Group Advising was implemented to decrease the amount of information that needed to be
repeated. Each adviser holds a group advising session. These sessions allow the advisers to use a Social Constructivist approach to advising, to deliver common information to the entire class.

**Assessment**
Both quantitative and qualitative assessments are planned for the advising model. McCormick currently surveys Seniors, through the Senior Exit Survey, Sophomores the Sophomore Satisfaction Survey, and all McCormick students through the Advising Survey. The Advising Survey was offered for the first time Spring 2015. McCormick Advisers are also surveying First-Year students through FYE for the first time Spring 2016. The goal is to have reliable tools to help assess the effectiveness of the advising model.

In 2013, the McCormick Advisers advised approximately 20 percent of the Class of 2017. 2014 is the first year the McCormick Advisers advised an entire class. The 2016 Sophomore Satisfaction Survey will be the first opportunity for the advisers to get direct feedback from their first full class. This coincides with the FYE Survey of the First-Year Students. The Advising Survey can be used to verify the results from the FYE Survey.

**Conclusions**
Northwestern University’s McCormick School of Engineering changed its advising model in 2013. The change allowed the school to focus on improving advising for First-Year students. Based on a 2013 survey of Big Ten Plus Consortium Institutions, McCormick chose a unique advising model (McCormick, 2013). McCormick Advisers have implemented that model as Advising-as-Teaching, and while the early impressions have been favorable, there has not been a review or assessment of the effectiveness of the model. With new quantitative tools and qualitative methods scheduled for use this year, there should be assessment data available for analysis in the next several months.


McCormick Undergraduate Engineering Office, Undergraduate Advising Processes in the Big Ten Plus Consortium, July 2013

