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CS 6460: Educational Technology: Assignment 1

In my personal statement I mentioned my interest in academic advising, and in particular advising as it applied to large, student-directed online programs where individualized advising was not available. I've taken the past two weeks to learn and gather data about traditional advising, and to think about what guidance I can take from the field in developing an advisor for the OMSCS program.

Exploring the problem

The discipline of advising is actually much broader than I had realized when first outlining my project. Numerous theories of advising exist.[1] Most are holistic and draw on corresponding theories in psychology; thus, practitioners' views of their vocation also tend towards the holistic. Beyond disseminating information for use in course selection, advising encompasses career planning, student retention, and potentially other areas central to the success of the institution or its graduates. And in addition to recommending courses, an advisor may suggest support systems, encourage involvement in particular aspects of student life, or apply other tools aimed at ensuring students are well-engaged with their academic life and well-prepared for their later career.[2] Even when we limit our focus to course selection, the advisor must keep track of information from many domains: *individual* data, such as the advisee's test scores, interests and performance in past courses; *official* data, such as what courses are required to graduate and when each will be offered; and *social* data, such as an aggregate of what past advisees have said about a given course.

Complicating our picture of advising even further, the advising process itself may be structured quite differently across institutions. The National Academic Advising Association (NACADA) recognizes 7 major models of advising that can be found at various colleges and universities across the country (Habley 1983, King 2008); for our purposes, the most relevant are the *self-contained model*, which closely describes the model currently in place in the OMSCS program,[3] the *satellite model*, which describes the overall Georgia Tech model of advising,[4] and the *shared-dual* or *dual model*. Self-contained advising programs are those in which all advising takes place through a central advising office; satellite programs are those in which each academic subunit is responsible for advising its own students; and dual model advising programs are those in which each student has a faculty advisor who offers mentoring requiring in-depth understanding of the student's major field of study, *in*

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[1] Some examples are listed in Hagen & Jordan, 2008.
[2] See for instance the case studies given on pp. 360-363 of the NACADA handbook.
[3] For an institution-level example of this model, consider UMUC (see endnotes).
[4] For a fairly detailed picture of this model, consider the University of Pittsburgh (see endnotes).

addition to a professional advisor who performs functions more easily generalized across majors.[5]

Refining the problem

Thus far I've discovered that traditional academic institutions sink quite a lot of resources into advising, that advising covers many areas of student life (not just course selection), and that an advisor's ability to connect and establish a trusting relationship with their advisees is considered very important to their success. In light of all this, it might seem that developing an automated advisor is too daunting to tackle in the span of a semester. However, there are several reasons to be optimistic about the value of a tool that focuses *strictly* on course selection and *strictly* covers the OMSCS:

Advising is a problem area for OMSCS. For instance, Dr. Charles Isbell has commented (see endnotes) that the sheer number of students in OMSCS makes advising a scalability challenge.

Course selection is the most common advising need in the OMSCS community. Anecdotally, relatively few students post to the Google+ group asking about student organizations. Some post to inquire about administrative details, deadlines, etc., but these inquiries can be answered well by referring students to existing information (such as the FAQ document and the official OMSCS site). Many students post asking, "What course should I take?", sometimes with additional biographical details (e.g., "I have no prior experience with Python") included. Because of the open-ended and subjective nature of these inquiries, they are also the most time-consuming to answer, and the results may vary wildly depending on who happens to respond.

There is precedent for splitting course advising and administrative advising. Dual-model advising institutions offload generalizable pieces of advising – for instance, help with the tools used for registration – from faculty members to professional advisors. This helps to ensure consistency, as well as to reduce the burden on faculty (both in terms of how much knowledge they must keep current as well as how much time they must spend with advisees), on the theory that it's easier to find a good professional advisor than a good physicist (or mathematician, or other researcher). Why not apply the same logic to offload the most time-consuming and thankless piece of the professional advisor's job to a piece of software?

Further issues

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[5] The exact division of labor between the faculty advisor and the professional advisor seems to vary somewhat. For example, Brandman University (see endnotes) has implemented a dual model wherein course selection is delegated to the professional advisor. However, Swanson suggests that the dual model places the responsibility for curriculum and major sequence issues with the faculty advisor.

I am beginning to form a tentative theory of curriculum design, and how it differs between graduate and undergraduate curricula.

The goal of education is to get the student to where he wants to go in life. However, this goal manifests itself in different forms throughout a student's academic career.

When the student becomes an undergraduate, his path is relatively constrained. [6] The university he attends will offer several majors; in choosing one, he commits to a program of study which has been mostly defined in advance. Here the institution is like a *highway*: its goal is to route persons more-or-less efficiently towards popular destinations. And like a driver on the highway, our student has the choice of several exits, places deemed sufficiently important by a central planner to warrant attention, but he cannot go wherever he pleases. Furthermore, once he has decided where he is going, his path is more or less given. If his destination is close to two exits he can choose to take either, but he cannot jump the concrete barrier and make a new exit no matter how hard he may try.[7] Any further exploration will be done outside the boundaries of the highway (his degree program). Correspondingly, advising for undergraduates is largely focused on questions such as which professor is best to have, which term it's best to take each required course, and what preparation is necessary for upcoming classes – how to ensure success in the predefined sequence of classes. Course selection per se is rarely a significant factor, except so as to ensure that the student will meet all the graduation requirements of his degree and has not overlooked any classes.

Contrast this with the doctoral candidate, who finds himself in a very different landscape. He will have in mind some area of research he intends to pursue; after getting the lay of the land, he will pick and choose courses he deems relevant to that area, navigating towards his goal in whatever way he deems appropriate. Here the institution is like a *launch pad*: its goal is to provide some resources and a jumping-off point that will allow individuals to navigate themselves towards a destination which may not even be decided yet. Once started the student has almost complete freedom.[8] As copilot, the student's thesis advisor also performs his academic advising, which is now focused on determining which courses are relevant to his research area – and scheduling them so that they do not interfere with his thesis work.

Master's candidates, such as those in the OMSCS, fall somewhere in between these two extremes. While the OMSCS curriculum offers some very broad requirements, the student has great latitude in meeting them. Almost any online course offered by the Institute may be applied to the degree. Unsurprisingly, academic advising for

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[6] Arguably, we could extend this analogy even further if we considered elementary and grade school – where the student has no volition at all and is merely a passenger.

[7] Not experimentally verified.

[8] Until he runs out of grant money – er, rocket fuel.

professional Master's programs usually falls somewhere in between the two extremes as well. Like an undergraduate, the M.S. candidate has some requirements he must meet in order to graduate. But like a doctoral candidate, the M.S. candidate still has latitude in *which* courses he takes.[9] This means that the ideal advisor should be able to provide both types of information: that which supports decisions about which courses to take, and that which supports success in courses once selected (and success in the overall degree program, e.g. by ensuring that course requirements are met). This premise will inform the project's design going forward.

All of these are very nice-sounding claims[10], but at present largely unsubstantiated. Ideally, I'd like to be able to offer compelling evidence for this progression from other- to self-directed curricula. Unfortunately, resources on academic advising at the graduate level are quite sparse; most theoretical and practical discussion is focused on advising undergraduates. That means that at the moment, I'm relying on an appeal to "everybody knows" and a large amount of anecdotal evidence.

While I haven't encountered any serious dissent yet, I'd like to be able to comment on this in a more informed way, with an understanding of the theoretical underpinnings of curriculum design at the undergraduate and graduate levels. So far my attempts to research this have turned up an abundance of material on in-course curriculum design (that is, preparing a syllabus, sequencing topics and scoping a course) and nothing on overall curriculum design (i.e., determining which courses will be included in a program of study).

Beyond this major issue, there are a couple of minor issues.

I would like to find more examples of institutions that implement the dual model of advising, for several reasons. I have noticed a trend that the dual model seems to be most common at institutions and in programs where the student population is older and/or consists mostly of professionals, and I would like to confirm or rule out that hypothesis. I also want to pin down the question of how duties are conventionally divided between the faculty advisor and the general advisor.

Finally, in the course of this investigation, I have read many comments which bear on the professional obligations of an advisor. Two which stand out in memory are:

> *In the first edition of this* Handbook*, Creamer (2000, p. 31) asserted that "no theories of academic advising are currently available." But there are really tens of thousands of theories of academic advising: one for every practicing academic advisor. … (Hagen & Jordan, 2008)*

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[9] In professional M.S. programs such as the OMSCS, there's another similarity: the M.S. candidate has a day job, and course loads must be scheduled so as not to interfere with it.

[10] In my unbiased opinion.

Step 5: Begin developing a personal advising philosophy. Network with other professionals through professional organizations. Perform a literature review and read what other advisors are currently discussing. Find out the "hot" topics in the advising profession. (McMahan, 2008)

While a simple web application can't really have a philosophy or theory of advising, its designer *can*, and I think it would be an excellent exercise to formulate the philosophy and theory of advising I wish to inform this project. This will be much simpler and more straightforward than those a "real" advisor would require, as my goal is not to cover the entire role but merely one aspect of it (course selection).

(Informal) Bibliography[11]

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While not independently listed here (because their contents didn't make it into the final cut of this assignment), I owe an intellectual debt to the materials put out by NACADA (the National Academic Advising Association), as well as to The Mentor (an academic advising journal).

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[11] Limited to items explicitly referenced in this assignment.