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AUTHOR Olesinski, Raymond L.
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ABSTRACT

This study sought to discover the factors that influenced the selection and organization of learning experiences by medical students engaged in designing individualized curricula. Ten students of the Independent Study Program (ISP) of the College of Medicine at Chicago-University of Illinois participated in the study. Data were collected through in-depth interviews and ISP application forms. The results indicated that outside information on educational conditions played an important part in helping ISP students determine their learning environment. Some of the information was unsolicited and obtained through well-established student networks. Students also actively pursued information about educational conditions to guide their curricular decisions. Although such information came from a variety of sources, ISP students tended to rely most heavily on trusted peers. (MDM)

When Students Design Curriculum: Acquisition and Evaluation of Curricular Information

Raymond L. Olesinski
University of Kentucky Center for Rural Health
100 Airport Gardens Road Suite 10
Hazard, Kentucky 41701
(606) 439-3557
roles00@ukcc.uky.edu

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American Education Research Association
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This paper discusses the acquisition and evaluation of information that guided the selection and organization of learning experiences for students who were engaged in designing individualized curricula. The literature emphasizes the importance of gathering information in curriculum design to help decide what knowledge is most worthwhile to have and what educational conditions are most conducive to acquiring it. However, there is little in the literature that tells how students gather and evaluate such information when they individualize curricula. This phenomenon was investigated by the author as part of a larger study on curriculum design as practiced by students. The related findings are the subject of the summary that follows.

Conceptual Framework

The larger study focused on discovering the factors that influenced the selection and organization of learning experiences by students engaged in designing individualized curricula. The perspective on the learning experience used in the study was consistent with that of Dewey (1938) and his view of learning as the interaction of learners with their environment in a learning situation. The learning situation is defined by two sets of conditions: the external, defining the learning environment, and the internal, defined by the needs, desires, purposes and capabilities of the learner. The environment is inclusive of subject matter, methods of instruction, institutional organization and material resources. The circumstances of the study population allowed students to control the nature of their learning environment by having a significant say in the choice of subject matter, instructional site and curricular organization.

Methodology

The study population was composed of students of the Independent Study Program (ISP) of the College of Medicine at Chicago/University of Illinois. The ISP allows students considerable latitude to develop individualized curricula not bound by the college's traditional curriculum requirements. Earlier reports have shown that these students' curricula markedly differ from the traditional curriculum (Olesinski et al., 1991) and the reasons underlying some of these differences (Olesinski, 1994). Data were collected through in-depth interviews with an informant sample of ISP students about their curriculum construction during the third and fourth

(or clinical) years of undergraduate medical education. The sample consisted of 10/19 senior students of the 1991 and 1992 graduating classes who participated in the ISP. Interview transcripts were coded and analyzed using grounded theory methodology (Glaser & Strauss, 1967; Strauss & Corbin, 1990). Data from students' applications to the ISP and their medical college course completion information were used to facilitate the collection of interview data and also served as a check on its validity.

Results

The informant sample consisted of five male and five female students. Only one of the ten students (Pamela; the names of students used in this paper are pseudonyms selected by them prior to the collection of interview data) had graduate school experience prior to entering medical school. Six of the students completed or planned on completing their undergraduate medical education in four years while the remainder extended their education an extra one to two years. At the time of the interviews 6 students (Elizabeth, Jane, Nick, Pamela, Peter and Robert) had completed all coursework, but had not yet graduated. The medical education of the remaining four students (Alecs, Berndt, Jessie and Rick) was still in progress. The mean undergraduate grade point average (on a five point scale) for the informant group was 4.49 (range=3.64-4.97) while the mean Medical College Admissions Test score was 10.60 (range=8.33-12.83).

Information obtained by the ISP students to guide their curricular decisions had distinct consequences. Thirty-seven cases were identified from the interview data in which information received by the ISP students distinctly influenced course or instructional site selection, or curricular organization (sequencing or course duration). These instances represented 31.9% of all third- and fourth-year clinical courses completed by the students at the time of the interviews. All 10 of the respondents reported this influence. In addition three situations were identified where students reported that the information at their disposal impacted more generally on the selection and organization of clerkships, or major third-year clinical courses. Typical comments included

> Infectious disease I chose especially to do in December because one of the residents that I knew at the ICU told me that the attending who happened to be rotating on service in December was really good. (Alecs)

> Radiology, at _____ because of Dr. _____. He has a very good reputation. I found that

> out from _____ [student's advisor] as well as from students that he was supposed to be an excellent teacher. (Jessie)
>
> And again that [cardiology at a particular instructional site] came recommended from people who were also in ISP, where you do this or what's a good thing to do. And that was recommended. (Nick)
>
> There were [resident physicians]...going through my husband's [service]...at _____—going into anesthesiology and they would say its a great lifestyle. So he would come home and tell me that's the thing to go into. So I said alright. He wanted me to check out derm and anesthesiology, radiology. So that's what I spent my spring doing. (Pamela)
>
> I'd heard from [another medical school] students who were friends of mine and also by physicians who had privileges at _____. So I went there and spoke to the director and arranged a four week clerkship. (Peter)
>
> It was my understanding that [instructional site] had a very strong reputation, knowing that my sister did her medicine there and the things I heard about it, the medicine department there. (Rick)

Not all of the students' courses were explicitly discussed with them during the interviews so the actual percentage of course selection influenced by outside information is probably higher. One factor considered in course and site selection was their reputation within the institution. Knowledge about this was gained through unsolicited and solicited information given to the ISP students. Unsolicited information about educational conditions within the institution was readily available. Students referred to information coming through the "grapevine," about the "word on the street," about how "word gets around," and how things are passed along "word of mouth" and by "hearsay." Some typical comments include

> Everyone knows that. The class before you tells you that. It makes common sense, and its just common knowledge that comes down from the years ahead of you. (Alecs)
>
> ...It was just one of the things that was the word on the street, and it was in my own class and they had heard it from people in other classes. (Jane)

Sources of unsolicited information were other students, friends who were not necessarily fellow students, faculty, the non-medical ISP program administrator, non-medical course staff, advisors and information distributed to the students about course descriptions and the senior comprehensive examination. The information obtained from these sources included recommendations for the selection and organization of learning experiences, including suggestions for course selection and sequencing and details about the nature of instructional sites.

Students also actively sought information on educational conditions from many of the same sources listed above. By far the most frequently noted sources, however, were other students. ISP students sought

information from other students about the program itself (including general details and information related to the ISP application process), their course experiences, instructional sites and suggestions for curricular options.

While the ISP students sought curricular information from other students, they did not weigh the information from all student sources equally. Information was more highly valued if the student sources already had experiences in clerkships in which the ISP students were interested, were considered to be friends or when their circumstances coincided with those of the ISP students.

> You just ask your friends. (Robert)

> My best friend did all the rotations that I did in the core clerkships completely opposite. So we both gave each other information. I took his advice, except for medicine. He did not take my advice, and he was very much more sorry than I was. (Robert)

> Most of the clerkships I set up, I talked to people who had already done them.... (Alecs)

Pamela was the sole exception to the tendency of students to seek curricular information from other students. Pamela's reported sources were primarily her physician husband and friends. She noted that she lost touch with her class because of delays in her education and that her family situation did not lend itself to socialization with other students.

Students also developed methods to evaluate whether or not a source or the information from the source was reliable.

> I realized that most of my classmates were not doing that great of a job sometimes. Then again we also lost a lot of people who didn't do well....You get to know your classmates. Even if I didn't know them personally, I'd know them by their writing. You'd come to their thing and throw it away because you just know they didn't have a clue. That's all developing judgement. (Nick)

> The way you find out about most clerkships is you ask other students and you get feedback and depending on what you regard of that student you either believed them or you don't. (Peter)

One means of evaluating the reliability of a source was to compare the information obtained from the source with the ISP student's own prior experiences. Robert commented

> In terms of personalities, you have mentors. You have big brothers that you meet as freshmen and you follow their lead, so to speak. Each one of us usually has a couple, especially if you find that they're right. For example, they'll predict, "Oh you had surgery at _____; great rotation. I did it there and I just found it fantastic." And...you did surgery at _____ and you said it was a great rotation; it was fantastic, and you put two and two [together]. This person knows what they're talking about, at least for me. And so that's the advice you go for in the future. It depends on the type of person that you are in terms of where you want to do things.

Students also sought corroboration from other sources and employed information gathering heuristics to obtain curricular information from fellow students.

> At the time I had made a good friend in a fellow student who was interested in ISP. She and I sort of randomly searched out everyone we could to find out about the program. We called students who were in it to see what they did. I remember I talked to a couple of students I had met the first six weeks I had been in school beforehand. And I knew they were in ISP so I called them and asked them what they did and what were the options. And when I got information from them I'd verify it with _____ [the non-medical ISP administrator]. (Jessie)

> I heard that mostly from students and the [clerkship] review packet that we had gotten from students, and I usually verified my questions with Dr. _____ [student's advisor], as well as _____ [ISP non-medical administrator]....If it was student-based I'd go back and ask _____ [non-medical ISP administrator] and Dr. _____ [advisor] and see what they could tell me. (Jessie)

The data also provided evidence that students employed particular information gathering heuristics to obtain curricular information from other students. The following comments offer examples of these:

> I was always asking. I knew that I wanted to be taught, and I knew that would require a good teacher, and so I ask a lot, "What was the good experience?" I want to know not only what was the good experience and who was the good teacher, but what did you do, what did you like about it—very intensive questioning. Exactly like what was your daily routine; if this is going to fit with me. (Robert)

> Most of it just comes up in lunchtime conversations. Some of it always comes out at lunch. You always ask each other, "Well, what are you doing? Where are you doing it?" These people that you used to see every single day in first and second year, during third and fourth year you lose contact with them and you don't even know what hospital they're at, or much less what clerkship they're doing. So when you happen to bump into each other it seems like the first question is always, "Well, what are you doing, and where are you, and is it any good?" I'm always asking people what's good. (Alecs)

> I was pretty good at gathering information. A lot of times a question I would ask [was] was what were the two best things that you did in your senior year? What were things that you would recommend again or that you would do over again? And that was always a pretty good way to get a little information out of people, getting them to get them to tell you what they felt without asking for a specific thing. (Nick)

While the students mainly used other students as the sources for information about the educational conditions at the College of Medicine at Chicago, it is also instructive to examine their interactions with their advisors. All of the ISP students were assigned an academic advisor by the college and were required to enlist the services of a self-selected research advisor. The use of assigned advisors as sources of information on educational conditions was minimal. Only one student reported meeting with her advisor on a regular basis. Her advisor was an exception because he had been selected by her and was someone she knew and trusted before medical school. Another student followed early advice of her advisor about what clinical courses to

select, but did not consult him beyond that. Two other students lost their original academic advisors whom were never replaced. Neither student found this regrettable. One student appropriated another's advisor as her own. None of the remaining students indicated that their academic advisors played a major role in determining their curriculum.

Discussion and Implications

This study indicates that outside information on educational conditions plays an important part in helping students to determine their learning environment when they are engaged in curricular individualization. Some of this information was unsolicited and obtained through a well-established student network. However, students also actively pursued information about educational conditions to guide their curricular decisions. Although information came from a variety of sources they tended to rely most heavily on trusted peers. They exhibited heuristics both for obtaining information and for evaluating the reliability of sources and the validity of their information.

The results of this study contrast sharply with research by Geis (1974) which concluded that undergraduate college students were not adept at seeking curricular information and were poorly motivated to do so. The differences in the conclusions of Geis' and this study may in part be due to the different nature of the student populations and the curricular options available to both groups of students. The burden was clearly on the ISP students to design and implement their curricula. The ISP students could also complete courses at a variety of instructional sites, which necessitated inquiry into which sites were more preferable than others based on the students' goals. While little is known about the curricular options available to Geis' study population it is assumed that they were probably less than those of the ISP students. It is also quite likely that the ISP students were a more mature, motivated and career focused group of students. These are certainly factors that need to be considered in future studies of students as seekers of curriculum information.

The college students in Geis' study population intimated they felt their curricular choices were highly constrained and that they just wanted to learn what was essential. The findings of the current study suggest that the motivation to seek curricular information may be dependent on the degree of freedom students have to

significantly individualize their curricula. The competitive nature of gaining admission to graduate medical education programs and the seriousness of preparing for practice as graduate physicians also suggests that the career choice of the ISP students motivated them to seek information that would lead to select quality learning experiences and to organize them in an effective manner.

It is important that decisions about curriculum design are based on sound, reliable information. This study is consistent with others that show students tend to rely mostly on peers, i.e., fellow students, for their information (Becker et al., 1961; Geis, 1974; Stone & Shader, 1972). Not only did the ISP students rely on peers, but they tended to rely on trusted fellow students, those whose career inclinations were similar to their own, or those for whom the validity or merit of their knowledge was tested by the students and found to be acceptable. While students may provide valuable information to other students from a student perspective, their ability to judge the merit of courses and instructional sites may be tempered by their limited professional experience. On the other hand, students made little use of assigned academic advisors who had substantial professional experience. The fact that some of the ISP students did utilize self-selected advisors to help guide their curriculum design, however, brings into question the efficacy of randomly assigned advisors. The study also implicates the role of social contact in determining whom students utilize as information sources.

The fact that students relied heavily on other students for their information raises two questions which must await future studies to answer. First, is the nature of information received from peers consistent with other measures of educational conditions? In other words, how faithfully do the students relate the conditions? Second, would information received from students about courses and instructional sites differ from what would have been given by other sources, e.g., attending faculty, resident faculty and academic advisors, if students sought information from them.

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