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Starting a new pipeline program for health sciences: do faculty and students value the same objectives?

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Perspectives and theoretical framework

Summer enrichment programs at health professions schools for disadvantaged and non-traditional undergraduate students have been in existence since the mid 70's. Such programs followed the traditional lecture-based format used by most medical schools at that time as are defined by the funding agencies (COE's 2006; HCOP's 2006). Funding for such traditional programs is coming to an end due to federal budget cuts. With new funding, on-going programs have an opportunity to change their educational approach that is more in line with innovative ideas such as those of Reflective Practice by Argus and Shon ((Argyris 1993), (Schon 1987)) and Learning Communities that adapt and grow in the manner described by Senge and others (Senge 1990; Senge 1999). These newer models tend to include more formative assessment to match the program and its development with the needs of the learners.

Two medical schools and one dental school in a large metropolitan area have collaboratively developed a new Summer Medical/Dental Education Program (SMDEP 2006), a six-week residential program targeting disadvantaged community college students. The program was one of 12 similar programs organized around the nation. Like traditional enrichment programs, the SMDEP aims to create a pipeline of such students to medical and dental schools encouraging practice in underserved areas.

The local program (henceforth referred to as SMDEP) was designed by a group of experienced faculty and educators and included lecture and small group instruction in “health disparities” and in conceptual science, problem-based learning cases related to disease processes common in underserved communities, discussions and small group activities on study and test-taking skills, reading time and instruction, motivational speakers, and some relevant clinical exposure.

Also, the program included a process in which faculty’s perception of learners’ needs was explored and students’ needs were surveyed frequently so that a mismatch could become apparent. Thus, the program could evolve continuously and potentially become more educationally effective.

Objectives

In this study we determined what program objectives faculty valued and what their perception was of students' need. We asked students what program objectives they found important and what the SMDEP should entail. The research question was whether the perceptions of faculty and students were in agreement.

Methods

The study was carried out in two phases employing qualitative and quantitative methods, respectively. In the first phase, program goals and objectives were explored with a combination of interviews and focus groups. Three staff members who were considered to be core to the program were interviewed individually: the program director who also taught the Learning Skills course, the program coordinator who also taught the Conceptual Science course, and the instructor of the Health Disparities course. A focus group was conducted with the remaining eight staff members, which included teachers, small group facilitators, the dentistry program director, and the student advisor. One staff member was not able to attend.

The program evaluator, who was not involved in the development and implementation of the program, conducted the interviews and focus groups. Three stimulus questions were used in the focus group and interviews:

- (1) What are the main goals and objectives of the program and what would be a successful outcome?
- (2) What are the program's educational strategies to reach these goals and objectives?
- (3) How should the program's effectiveness be evaluated and its quality be assured in the future?

Audio was recorded during these sessions and was later transcribed. Next, the evaluator and another rater independently extracted and structured themes from the transcripts, compared them and reached consensus on the final structure. The organized themes and representative quotes were sent to the participants for correction and comment. For the purposes of this paper, only the outcomes pertaining to program objectives were used for subsequent analysis.

Eight objectives were identified. One objective pertained to sharing the program with other institutions and to serving as a national model. This objective, albeit important, was considered beyond the scope of students' interest and was not further used in the second phase of the study. The remaining objectives are listed in Table 1.

TABLE 1: Program objectives as suggested by the focus group and interviews

Inspire	Inspire students through contact with faculty and other students with similar background
Confidence	Build confidence and self-efficacy
Health disparities	Increase awareness and understanding of health disparities
Self-reflection	Promote self-reflection, help students understand what their attitudes are, their level of commitment and compassion
Expose	Expose students to new experiences which will make them more likely to succeed (e.g., expose to different cultures, to new career options, to small group learning and personal counseling)
Skill building	Strengthen a diverse set of skills, such as learning skills, reading skills, teaching skills, and interpersonal skills
Academic profile	Facilitate acceptance in Medical or Dental School by creating an academic profile, a learning plan, learning about common pitfalls and about tools for improving MCAT/DAT scores.

The second phase of the study took place during the fourth week of the program and involved the students and staff. They were presented with the program goals as defined in Table 1 on a questionnaire. All possible pairs of these seven objectives were listed (for instance, “Inspire” and “Confidence”). The resulting list contained 21 pairings placed in randomized order. Participants were given the following instruction:

“For each pair of the program objectives outlined below, please circle the objective that you consider more important for the SMDEP program. It may be hard to decide which of each pair is more important. But you must choose one objective from each pair, or your responses will not be analyzed. Definitions for each objective are provided above.”

The data were analyzed according to the paired comparison approach (Streiner 2003). In order to estimate the relative importance of the seven items, proportion (or probability) of each item was calculated and converted to z-scores. This was done for staff and students separately. This resulted in two rank-ordered lists of program objectives with associated weights of importance expressed on the same scale (z-scores).

Finally, students were also asked, “In your view, on what other program objectives should the SMDEP focus?” Their answers were categorized and tabulated.

RESULTS AND CONCLUSIONS

A total of 69 students participated in the survey out of 79 who were enrolled in the program. Five students turned in incomplete surveys and were excluded from the analyses. All staff members (N=12) completed the survey.

Table 2 lists the mean z-scores assigned to each program objective by students and staff. Note that a negative score does not indicate that respondents considered the objective unimportant. The z-score merely represents an importance ranking of a particular objective relative to the other objectives.

TABLE 2: Mean z-scores for each program objective assigned by students and staff.

Program Objective	Students	Staff
Skill Building	0.28	0.65
Expose	0.26	0.12
Academic Profile	0.01	0.26
Health Disparities	0.00	-0.49
Inspire	-0.10	0.07
Self-reflection	-0.24	-0.69
Confidence	-0.40	0.11

The correlation between the students' and staff's rating was moderate (Pearson's correlation coefficient = 0.49). While both students and staff rated skill building as the most important objective, several marked differences between the two groups emerged regarding some other objectives. Students found being exposed to new experiences nearly as important as skill building, whereas faculty considered this less important.

Staff ranked awareness and understanding of health disparities much lower than students did. They viewed other more general objectives, such as "build confidence and self-efficacy," as more important. Students, in contrast, found the latter the least important of all objectives.

In the focus group, staff emphasized how important self-efficacy and confidence is in the long run for aspiring medical students. As one faculty members stated:

"People are really too quick to feel like failures because they don't do well in one class. And then it creates this whole cycle of [...] bad decisions. So self efficacy is so huge."

In response to the question on what other program objectives the SMDEP should focus, 24 students (35%) suggested that the program offer more hands-on exposure to clinical settings. This finding was consistent with the high importance rating by students of the "exposure" objective. Furthermore, several students (N=7, 10%) desired more training in the medical or dental school process, including the national admission tests, MCAT and

DAT. Interestingly, these two activities were restricted or forbidden by the national granting agency. SMDEP and its national counterparts could only devote 5% of scheduled time to clinical experience and no time at all to MCAT or DAT preparation.

Students' expectation to get more clinical exposure could perhaps be attributed to information that was provided on the granting agency's website about the program offerings:

“Limited clinical exposure through small-group clinical rotations and full-group clinician seminars”

This somewhat ambiguous statement might have led students to believe that a more heavy emphasis would be given on shadowing clinicians and hands-on clinical experience. Furthermore the website advertised “intensive and personalized medical and dental school preparation.” That students expected this to include MCAT or DAT preparation should not have come as a surprise.

Several lessons can be derived from this study. It demonstrates that an iterative self-study process can be an informative component of formative evaluation of a program that allows itself to evolve continuously. It shows that such a process can detect discrepancies between the perceptions of students and staff early on in the program. Little could be done, however, during this iteration of the program to address this set of particular differences. Subsequently, several measures (such as better communication about the program) can be put in place to avoid these differences in the future.

Feedback to the program director though can serve as a means of validating the program on the fly. This data, for instance, allowed the director to continue with the current design with a sense that the data validates the initial assumptions.

In conclusion, this study describes a process of formative program evaluation in which both faculty and learners participate. As the program continues to evolve, student and

faculty may reach more closely matched expectations, espouse congruent goals, and work together to create an environment in which learning experience can be refined.

It also provides a model evaluation component that other sites in the national program can use to promote their educational objectives.

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