Faculty Development

The Influence of Academic Projects on the Professional Socialization of Family Medicine Faculty

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**Background:** Successful academic physicians acquire and maintain productive colleague relationships, understand unwritten rules of academe, and effectively manage their careers. Developing these professional socialization skills are goals of some faculty development programs (FDPs), but there is scant evidence about whether such programs are effective. **Methods:** A nationwide retrospective, cross-sectional written survey was conducted in two phases: (1) FDP directors who received US Department of Health and Human Services, Health Resources and Services Administration support between 1994 and 1997 described program activities and provided enrollee rosters and (2) enrollees reported socialization and colleague outcomes. Instruments were developed, pilot tested, and administered for this study. Analysis utilized descriptive statistics, factor analysis, and ANOVA. **Results:** Of 52 eligible directors, 37 (71%) provided FDP activity details and rosters. Of 543 eligible enrollees, 351 (65%) returned surveys. A key result of factor analysis was a seven-item scale related to academic project activities. FDPs with greater emphasis on these activities were associated with enrollees reporting higher levels of colleague relationships and professional socialization skills. **Conclusion:** This study’s factor analysis indicates that certain FDP project activities are positively associated with enrollees' professional socialization outcomes.

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Family medicine has been a leader in designing and implementing faculty development programs (FDPs) for new physician faculty members. FDPs have been implemented within academic departments, regional training centers, and as a major activity of many professional societies, including the Society of Teachers of Family Medicine (STFM).

In addition to building new faculty skills in traditional areas such as research, leadership, and clinical teaching, FDPs have been designed to socialize new physicians to academic medicine. In their classic text, Bland and colleagues described a set of socialization skills for medical faculty, consisting of the ability to manage one’s academic career, knowledge of norms, values, unwritten behavior codes of academic medicine, and skills to develop and maintain a network of academically productive colleagues.¹ Researchers have underscored the importance and validity of these socialization skills for building successful academic medicine careers.²⁴ Evaluation studies and review articles have reported on FDP activities and their influence on faculty socialization.¹³⁴ For example, published reports have detailed the influence of assigned mentors and colleague networking on FDP participants’ socialization.²⁵ However, FDP studies on academic physician socialization have had limitations for two reasons. First, these studies highlight the results of single programs with small sample sizes, so that it is not clear whether their results would generalize to other programs. Second, prior studies focus on one socialization method (eg, a workshop or mentoring), limiting our understanding of how several program activities might work together to influence socialization outcomes.

These limitations are addressed by the present study. The analyses reported here build on an earlier report on the influence of family medicine FDP participation on enrollees’ development of colleague relationships and academic socialization skills.⁷ In part, the earlier report showed that family medicine faculty members improved socialization skills and acquired or developed career-helpful colleague relationships after FDP participation. Socialization improvement was rated as moderate to high in three areas that are crucial to career advancement. Results also showed that, on aver-
age, participants gained six career-helpful colleagues who provided actual career support, in such forms as editing a paper, joint teaching, or improved administration. Participants also gained an average of three colleagues who were perceived to be available to provide career support if called on. Perceived colleagues are valuable because of their positive association with work satisfaction. Combined, FDP participants acquired or developed an average of nine colleagues who provided actual support or were perceived to be available to do so.

Results of this earlier report are important because the presence of academic colleagues and socialization “appears to predict which faculty members will be achievers and those who will not.” But, from the perspective of FDP planners and stakeholders, it is also important to determine the association between specific instructional activities and these FDP outcomes. Therefore, the current study expands on the earlier analyses to explore the influence of a set of FDP instructional activities on professional socialization and colleague development. The study addresses two research questions: “Is there an association between enrollees’ acquisition of colleague relationships and the instructional activities of their FDP?” and “Is there an association between enrollees’ professional socialization skills and the instructional activities of their FDP?”

Methods

This retrospective, cross-sectional study was conducted in two phases. In phase 1, I gathered information from FDP directors about program activities and enrollee rosters needed for phase 2. In phase 2, enrollees described the socialization outcomes that emerged from FDP participation. Written surveys used for both study phases were designed and administered based on a widely used model in social and educational research called the total design method. This method has several features that work together to maximize return quality and quantity by identifying all aspects of the survey process and shaping them in ways that are likely to result in accurate and complete responses. For example, this method provided guidance on envelope size, postage type, cover letter composition, the organization of items, and the timing of mailings. Prior to study implementation, approvals from the University of Wisconsin-Milwaukee and the Medical College of Wisconsin Institutional Review Boards were obtained.

Phase 1: Program Directors Survey

In the program director survey, subjects were all family medicine FDP directors (n=52) who received Health Resources and Services Administration (HRSA) support for FDPs during 1 or more years between July 1994 and June 1997. HRSA-funded programs were selected for study because their funding demonstrated that the programs met established standards for quality and rigor (eg, articulated objectives, evaluation plan, follow-up with graduates). The director survey was pretested with a purposive sample of six FDP directors selected for their expertise and because they represented a range of FDP types (eg, 1-year, community-based program; 2-year, full-time residency focus). The survey asked directors to provide numerical answers (eg, “What was the planned, overall length of enrollment in this FDP?”) and to rate the presence and emphasis of 20 instructional activities associated with professional socialization. This list of 20 items was developed by first conducting a review within adult education and professional development literature, which resulted in 18 methods and activities. During the director pretest, I reviewed this list, asking “Would you revise this list or add any item associated with the development of professional colleagues or socialization skills at your institution?” Two activities were added and confirmed by other program directors, resulting in the total of 20 items. Items included “In this FDP, it was emphasized that enrollees use e-mail and/or the Internet to interact with co-participants and/or program staff,” “In this FDP, it was emphasized that enrollees have an assigned FDP advisor or mentor,” and “In this FDP, it was emphasized that enrollees establish goals for developing a network of colleagues for support.” The program director survey included instructions for preparing and returning participant rosters.

Phase 2: Participant Survey

Participants in the phase 2 survey were family physician faculty members who were enrolled in HRSA-funded FDP activities for 6 months or more between 1994 and 1997. These individuals were listed on the program director-provided rosters. The survey instrument was pretested with a nonoverlapping set of 10 primary care FDP participants (enrolled prior to this study’s years of interest). Six weeks later, pretest subjects were retested to assess instrument reliability.

Participant survey subjects used a 5-point Likert-type scale (5=very much, 1=not at all) to rate the degree to which their FDP helped them improve a cluster of academic socialization skills that had been applied and validated in prior research. The cluster consisted of three items: (1) acquire skills to manage a productive career in academic medicine, (2) understand the norms, values, and unwritten rules of academia, and (3) build and maintain a network of productive academic colleagues. Next, subjects reviewed the definitions of four colleague relationship types taken from the literature: mentors, peers, academic consultants, and perceived colleagues. Subjects entered the total number of each colleague type with whom they had “initiated or strengthened a professionally helpful relationship
directly because of FDP participation.” Subjects were instructed to report each FDP colleague only once.

**Survey Mailing Procedures**

All subjects were mailed up to three survey packets with cover letters that noted the value of their voluntary investment of time to complete and return the survey. Based on the survey model described earlier, I mailed new packets at 4-week intervals. For anyone who had not responded 5 weeks after the third packet had been mailed, I sent a postcard survey that requested demographic information and asked a few brief questions about their FDP experience. All data collection and analysis were completed in 2001.

**Data Analysis**

ANOVA was used as a group mean comparison test because of its ability to assess two or more conditions in a single, overall test.12,13 Respondent and nonrespondent variables were thus compared using ANOVA.

Because some respondents had participated in FDP more recently than others (around 2–3 years, compared with 4–5 years), I used the Pearson chi-square test to determine if there were differences in outcome variable ratings due to more-recent FDP enrollment. The participant instrument’s test-retest reliability was assessed using Pearson’s correlation.

I used factor analysis to explore underlying concepts within the 20-item instructional activity list completed by program directors.12 Factor analysis was selected because of its benefits as an exploratory tool useful for clustering intercorrelated variables. Principal component analysis was used as the extraction method, with varimax rotation. I used Cronbach’s alpha to assess the internal consistency of the scale, with a .70 target.12,13

After factor analysis, I used the means of factor items to create four instructional activity emphasis levels: “not present/low,” “low to medium,” “medium to high,” and “high.” These levels were the independent variables used to determine the association between instructional activities and the dependent variables of colleague relationship and socialization outcomes. I analyzed the research questions using descriptive statistics and ANOVA. I examined data to ensure that assumptions for ANOVA (eg, independence, population normalcy, homogeneity of variance) were not violated.13 The Tukey post hoc test was used for multiple comparisons. Finally, I used a significance level of .05 for statistical tests.

**Results**

**Response Rates**

In phase 1, a total of 37 of 52 directors (71%) responded, with both completed questionnaires and participant rosters for contacting their program enrollees. Responding programs and nonresponding programs were similar on each of three comparison variables (years in operation, duration, and annual enrollees). The 37 responding programs were dispersed throughout the 10 US regions used by HRSA to geographically categorize funded programs.

In phase 2, nondeliverable mail and returns from those who were ineligible resulted in a final population frame of 543 subjects. A total of 351 usable instruments were returned, which yielded a 65% response rate. A comparison of respondents (n=351) and eligible nonrespondents who returned postcard surveys (n=59) showed no significant differences in age, gender, ethnicity, or program duration.

**Subject Characteristics**

Most enrollees (54%) were in FDPs characterized by a mix of residency and medical school faculty. FDPs characterized by a predominant mix of enrollees from residency and community/group practice sites comprised 27% of the sample. Ten percent of the enrollees were in programs with only residency program faculty; 6% were from programs whose enrollees were exclusively from community-based, non-residency sites; and 3% participated in FDPs where only medical schools were enrollees’ primary work sites.

Women who responded (34% of total) averaged age 37 years and 2.7 years as faculty when they began their FDP. Men averaged age 40 years and 4.4 years as faculty when they began their FDP. White respondents (84% of the total) began their FDP at an average age of 39 and had 4.2 years as faculty members. Non-white respondents—5% Hispanic, 4% Black, 4% Asian, and 3% “other”—began their FDP at an average age of 38 years and had 1.9 years as faculty.

**Instrument Characteristics**

Test-retest analysis showed that the participant instrument was reliable, since it reached a correlation of .86 over all instrument sections, which exceeded the .70 target.13 As discussed earlier, I wanted to determine if recent enrollees were different from more-distant enrollees on the two outcome variables of socialization scale scores and colleague relationship totals. Using the Pearson chi-square test showed that there was no recency effect, since there were no significant differences between the observed and the expected proportions.

**FDP Outcomes**

Subjects reported an average of just over nine colleagues acquired or developed due to their FDP experience.7 These nine consisted of six who had provided career support (peers, consultants, and mentors) and three who were perceived to be available to provide help if asked.7 Subjects’ self-ratings on the three academic socialization items ranged from 3.3 (“understand the norms, values, and expectations of academic medi-
cine”) to 3.6 (“build and maintain a network of productive colleagues”). The combined, overall mean was 3.4, with a standard deviation (SD) of .87 (1=not at all improved and 5=very much improved).

The program director survey included the 20-item list of instructional activities associated with professional socialization. This list was analyzed using factor analysis. The rotation converged in seven iterations. A total of five factors had eigenvalues greater than one that together explained 75.5% of the variance of the components. The first of these five factors explained 40.5% of the variance, and the other four explained between 6% and 12%. Exploratory analysis showed that only the first of these five factors appeared related to the socialization outcomes of interest. Therefore, further analysis for this study was restricted to this factor, which consisted of seven items. All loadings on this factor matrix table are above .5, indicating that the items have a strong effect on the construct measured. These seven items were combined into the “project activity scale.”

Table 1 displays the seven items, item loadings, and the remaining activities that were subject to analysis. The mean rating for these seven project activity scale items was 3.1 (end anchors were “not present”=1, “present with high emphasis”=4), the SD was .90, and Cronbach’s alpha was .92, indicating a high rate of internal consistency.

To analyze the association of the project activity scale with the outcome variables, mean scores were grouped to create four project activity emphasis levels of roughly equivalent size. The number of enrollees and FDPs within each level ranged from a low of 68 enrollees and seven FDPs, to a high of 134 enrollees and 13 FDPs. The means ranged from 1 to 1.9 for the “not present/low emphasis” level and 3.7 to 4 for the “high” level of project emphasis.

Using project activity emphasis levels as the independent variable, two study questions were analyzed: “Is there an association between enrollees’ acquisition of colleague relationships and the project activity emphasis of their FDP?” and “Is there an association between enrollees’ professional socialization skills and the project activity emphasis of their FDP?” There was a significant ($P<.05$) and positive association between the presence and emphasis of project activities and colleague relationship totals. As the emphasis of project activities increased from low to high, newly acquired or developed colleague relationships increased from 6.4 to 10.5. High SDs indicated that there was considerable variation in colleague totals within each of the four levels.

There was also a significant ($P<.05$) and positive association between project activity scale scores and academic socialization improvement. Participants’ socialization scores increased on average from 2.7 in low project emphasis programs to 3.7 in medium or high project emphasis programs. These findings are summarized in Table 2.

**Discussion**

This study looked across a nationwide sample of family medicine FDPs and their enrollees to quantify out-

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**Table 1**

Factor Analysis Results: The Seven-item Project Activity Scale and Other Instructional Activities Associated With Professional Socialization**

<table>
<thead>
<tr>
<th>Project Activity Scale Items*</th>
<th>Loading</th>
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<tbody>
<tr>
<td>1. Work on projects outside of formal class time.</td>
<td>.877</td>
</tr>
<tr>
<td>2. Complete one or more academic projects, eg, in education, research, administration.</td>
<td>.858</td>
</tr>
<tr>
<td>3. Receive peer feedback on academic project presentations and reports.</td>
<td>.827</td>
</tr>
<tr>
<td>4. Have an assigned mentor or adviser.</td>
<td>.789</td>
</tr>
<tr>
<td>5. Work jointly with co-participants to complete required FDP projects.</td>
<td>.753</td>
</tr>
<tr>
<td>6. Be in touch with FDP staff between regular meetings to monitor activities and/or projects.</td>
<td>.535</td>
</tr>
<tr>
<td>7. Use e-mail/Internet to interact with co-participants and/or program staff.</td>
<td>.533</td>
</tr>
</tbody>
</table>

* Other Instructional Activities**

8. Learn skills needed to develop and maintain colleague relationships.
9. Establish goals for developing a network of colleagues for career support.
10. Learn how and when to effectively approach others for help with FDP activities.
11. Understand how to transfer networking skills back to participant work sites.
12. Learn to maximize network opportunities at professional meetings.
13. Participate in small-group discussions and/or small-group exercises.
14. Receive oral feedback on group leadership and/or group participation skills.
15. See effective collaborations modeled by FDP faculty, staff, and/or guest faculty.
16. Witness public recognition for joint efforts in scholarly activities.
17. Be part of a learning group designed to start and finish their FDP pretty much intact.
18. Develop links to key departmental (eg, chair) and institutional (eg, faculty council) colleagues to build one’s network.
19. Attend occasional events that include time for socializing with co-participants, guests, and staff.
20. Interact with guest faculty who hold/hold leadership roles in academic medicine.

* This scale of seven items emerged from factor analysis of a 20-item list of instructional activities associated with faculty socialization. In phase 1 of this study, FDP directors rated the presence or emphasis of these activities within their programs.

** Shown in this part of the table are all of the other instructional items rated by FDP directors that were not strongly associated with the socialization outcomes of interest and did not load on the project activity scale.

FDP—faculty development program
comes related to professional socialization and to explore instructional activities that were associated with those outcomes. One notable finding from the study was the heterogeneity of faculty types within programs, since more than 80% of the programs enrolled combinations of participants from medical schools, residency programs, and/or community sites. While this finding alone doesn’t lead to the conclusion that training for these various enrollee types was being jointly conducted at all times, it does suggest flexibility within FDPs to accommodate diverse faculty types and development interests.

Based on an exploratory factor analysis, a scale of seven instructional activities emerged that I called the project activity scale. It is composed of five items directly involving FDP project activities and two items involving mentors and their e-mail or Internet interactions. I justify the inclusion of these relationship and interaction items in the scale because such contacts often involve between-session interactions about FDP projects. Among the 20 instructional activity items rated by FDP directors, these seven were strongly related to project activities. The project theme of this scale and its association with socialization outcomes underscores an important role for projects in developmental relationships. The usefulness of projects early in academic careers has been described in higher education and reported in studies of successful mentoring relationships in academic family medicine.

Higher FDP emphasis on project activities was associated with a greater number of colleague relationships. Participants in FDPs with low emphasis on project activities developed an average of just over six colleagues, while participants in FDPs with high emphasis on these activities developed over 10 academic colleagues. This finding is significant because prior studies have shown that career benefits are positively associated with larger colleague networks. In addition, project activity level had a significant and positive association with professional socialization skills. Participants from FDPs with “medium to high” project activity levels averaged a 25% higher socialization scale score than those from low emphasis programs (from 2.7 to 3.7 on a 5-point scale). This finding is important because socialization skills are essential for making career decisions such as what professional committees to join, when to negotiate for resources, and how to take early steps toward academic promotion. Skills to make decisions such as these will greatly influence a junior faculty member’s achievements and career success.

The 13 other activities were not as clearly associated with the socialization outcomes of interest. Generally, these FDP activities are more abstract and intangible, while the aforementioned project activity scale items are more hands-on and concrete. As physicians are socialized to a sometimes-complex array of academic roles, hands-on activities may help organize their efforts and reduce role uncertainty, which may benefit socialization. Another possible reason for the strong influence of projects on socialization relates to the practices of some FDPs that emphasize the align-

### Table 2

<table>
<thead>
<tr>
<th>Project Activity Level*</th>
<th>Enrollees (FDPs) at This Level</th>
<th>Colleague Relationship Mean (SD)**</th>
<th>Socialization Improvement Mean (SD)#</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not present/low emphasis</td>
<td>68 (9)</td>
<td>6.4 (5.4)</td>
<td>2.7 (.85)</td>
</tr>
<tr>
<td>Low to medium emphasis</td>
<td>69 (8)</td>
<td>6.7 (6.0)</td>
<td>3.3 (.85)</td>
</tr>
<tr>
<td>Medium to high emphasis</td>
<td>80 (7)</td>
<td>9.4 (6.8)</td>
<td>3.7 (.80)</td>
</tr>
<tr>
<td>High emphasis</td>
<td>134 (13)</td>
<td>10.5 (5.8)</td>
<td>3.6 (.74)</td>
</tr>
<tr>
<td>Total</td>
<td>351 (37)</td>
<td>9.1 (6.1)</td>
<td>3.4 (.87)</td>
</tr>
</tbody>
</table>

* Project activity levels were derived from the means of the seven-item project activity scale. Levels (means): not present/low emphasis (1–1.9), low to medium (2–3.3), medium to high (3.4–3.6), high (3.7–4).

**Colleague relationships refer to the total colleague relationships (mentors, peers, academic consultants, perceived colleagues) that were initiated or strengthened due to FDP participation. The ANOVA test compared four levels of the independent variable “project activity level” on the dependent variable “colleague relationship totals.” The results were significant (F=6.97, P<.001). The Tukey post hoc test showed two significant comparisons: the not present/low emphasis group was significantly different from both the medium to high emphasis and the high emphasis groups.

# This column shows the combined mean of three socialization scale items. Item anchors were 1=not at all improved, 5=very much improved. The ANOVA test compared four levels of the independent variable “project activity level” on the dependent variable “socialization improvement.” The results were significant (F=24.63, P<.001). The Tukey post-hoc test showed that one comparison was not significant: the medium to high emphasis group did not significantly differ from the high emphasis group.

FDP—faculty development program
SD—standard deviation
ment of enrollee projects with organizational priorities. When this type of project alignment can be achieved, faculty socialization to organizational expectations may be a beneficial by-product.

Limitations

This study has limitations. Its focus on family medicine FDPs limits generalization of the findings to other specialties. The study’s exclusive use of HRSA-funded programs and enrollees also may limit its generalizability to other types of faculty development activities. Further, the 65% response rate may reduce confidence that the results accurately portray the population. In addition, the study relied on self-report data, which can be a biased indicator of experiences. Finally, the study findings are based on participants’ retrospective views of program experiences, some that occurred more than 5 years prior to data collection. While I found no evidence for a historical bias due to the recency of enrollment, time since participation could have influenced data in other unexpected ways.

Conclusions

This study extends prior research on the influence of FDP activities and projects on professional socialization outcomes. The seven-item project activity scale makes a potentially valuable contribution to scholarship on FDP design. The significant association of project activities with both colleague relationship gains and socialization skills represents a possible advance in understanding how to stimulate important FDP outcomes. Because of the association between projects and socialization outcomes, more research on the characteristics of successful enrollee projects appears warranted. Further studies might also use qualitative designs to examine the role of projects in advancing the socialization of women and underrepresented minority faculty.

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References