Original Research Paper

An Educational International Partnership Responding to Local Needs: Process Evaluation of the Brazil FAIMER Regional Institute

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ABSTRACT

Introduction: The Brazilian public health system requires competent professionals sensitive to the needs of the population. The Foundation for Advancement of International Medical Education and Research (FAIMER) provides a two-year faculty development programme for health professions educators, aiming to build leadership in education to improve health. A partnership with governmental initiatives and FAIMER was established for meeting these needs. This paper describes the initial process evaluation results of the Brazilian FAIMER Institute Fellowship (FAIMER BR). **Methods:** Data were analysed for the classes 2007–2010 regarding: application processes; innovation project themes; retrospective post-pre self-ratings of knowledge acquisition; and professional development portfolios. **Results:** Seventeen of 26 Brazilian states were represented among 98 Fellows, predominantly from public medical schools (75.5%) and schools awarded Ministry of Health grants to align education with public health services (89.8%). One-third ($n = 32$) of Fellows' innovation projects were related to these grants. Significant increases occurred in all topic subscales on self-report of knowledge acquisition (effect sizes, 1.21–2.77). In the follow up questionnaire, 63% of Fellows reported that their projects were incorporated into the curriculum or institutional policies. The majority reported that the programme deepened their knowledge (98%), provided new ideas about medical education (90%) and provided skills for conflict management (63%). One-half of the Fellows reported sustained benefits from the programme listserv and other communications, including breadth of expertise, establishment of research collaboration and receiving emotional support. **Conclusion:** Contributors to initial programme success included alignment of curriculum with governmental initiatives, curriculum design merging educational technology, leadership and management skills and central role of an innovation educational project responding to local needs.

Keywords: Faculty development, healthcare system, health professions education, leadership, programme evaluation

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Introduction

There is increasing awareness that leadership and management skills are a critical component of faculty development in health professions education (HPE).[1-4] However, the methods and content of faculty development and education leadership programmes have received little attention in resource limited

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regions.[5,6] In 2001, the Foundation for Advancement of International Medical Education and Research (FAIMER) in Philadelphia, USA, began a fellowship programme for mid-career faculty members from health professions schools from developing countries to increase educational skills, develop leadership and management skills and grow a community of practice.[7-10] The ultimate goal is to build field leadership[11] in HPE, to help develop competences to understand and support education values, mission, goals and practice linked to improving the health of communities.[7,12] To expand on achievement of its goals, the FAIMER Institute added five Regional Institutes (FRI), three in India, and one each in southern Africa and Brazil.[13]

The Brazilian Unified Health System (SUS) provides universal access to care, under the direction of the Ministry of Health (MoH), relying on a primary care strategy assuming a family health model.[14] This innovative paradigm requires health professionals competent to work in teams that provide care for geographically assigned population groups or territories. In 2001, the Brazilian Ministry of Education established National Guidelines for Health Professions curricula (DCN), stating that professionals should be trained at all levels of care, and be competent to work in teams within SUS.[15] As a strategy to enhance consolidation of the primary care-based health system, the Brazilian MoH, in conjunction with the Ministry of Education, initiated grant programmes to support the implementation of curricular reforms and stimulate the interaction between academic institutions and Brazilian healthcare services. The first of these programmes, Program for the Promotion of Changes in Medical School Curricula (PROMED), was launched in 2002 at 19 medical schools.[16] In 2005, it was replaced by Pró-Saúde (National Programme on Reorientation of Health Professional), and extended to Nursing and Dental schools (89 schools received grants). In 2010, Pró-Saúde expanded to include all undergraduate health schools (69 additional schools received grants). In early 2010, a new initiative, Pet-Saúde (interdisciplinary student group Programme for Education through the Work in Health) complemented Pró-Saúde, offering scholarships for students, tutors from public health services and faculty supervisors to implement action projects on family health, health surveillance, mental health and drugs (606 groups awarded). In 2010, new initiatives broadened the actions implemented to promote the development of HPE as a field of study and career pathway. These included Pró-Residência that aims to increase the number of specialists in shortage areas, with mentoring for new programmes by well-established residency programmes, and Pró-Ensino, an initiative to provide financial support and scholarships for the development of graduate degree programmes in HPE, promoting development of lines of research, with 31 projects awarded.[17,18]

Concomitant with these governmental initiatives, FAIMER BR was initiated in 2007, with support from the Brazilian MoH, Pan American Health Organization (PAHO) and FAIMER. FAIMER's ultimate goal to improve the health of populations through the development of HPE was closely aligned with the Brazilian MoH policies on capacity-building of a health workforce to meet the needs of the population and the national health system. FAIMER BR was originally offered to medical school faculty and later expanded to all health professions.

The core elements of FAIMER BR are similar to the FAIMER Institute's two-year part-time fellowship in Philadelphia [Figure 1], merging education technologies with leadership and management topics, and creating a sustained community of educators to develop field leadership.[13] First-year Fellows overlap with returning second-year Fellows for three days to share presentation of project achievements, and plan future activities together. The distance learning component involves interaction through an electronic discussion list, and both classes design and direct monthly distance learning modules with faculty supervision. Fellows implement an education project in their home institution.[13] The application of learning to authentic situations supports effective human capacity-building and is compatible with adult learning and leadership development research.[19,20] The model also takes into account that education for health professions is a social and complex endeavour.[21]

Some differences between FAIMER BR and the global FAIMER Institute include an increased number of Fellows per class (25 compared with 15), shorter residential sessions, a high degree of alignment of Fellows' projects with governmental initiatives and close collaboration with national HPE stakeholders.

The FAIMER Institute has been evaluated to understand its dynamics and effects on Fellows and other stakeholders.[13,22] The theoretical basis for evaluation integrates several established evaluation frameworks.[23-26] The process evaluation of FAIMER BR offers a unique opportunity to study the initial results of a national leadership faculty development programme in HPE in a developing country where such studies have been limited. It also represents an opportunity to evaluate the programme alignment with the human capacity-building plan to improve the Brazilian unique universal healthcare

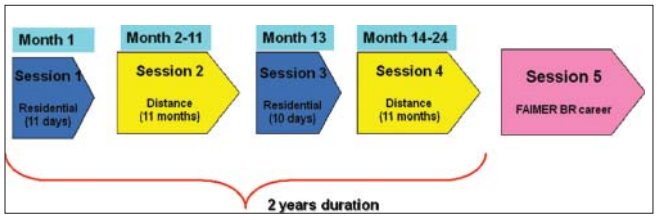

Figure 1: Components of the FAIMER Brazil Programme for Health Professions Educators

system (SUS). This paper describes process (implementation and progress) evaluation results[27] of the FAIMER BR programme and includes its reach in the country, project themes and participants' perceptions of knowledge gain and impact of the fellowship.

Methods

Study population

Complete data were collected from the 2007 and 2008 classes, with initial data from the 2009 and 2010 classes. Consent rates for participation in the evaluation of the programme were 80% (20/25) for the 2007 class and 100% (25/25) for each of the 2008, 2009 and 2010 classes.

The project was approved by the Institutional Review Board at the Federal University of Ceara, Brazil, the Institutional Review Board at the University of Pennsylvania and the Institutional Review Board of the University of New Mexico.

Measures

Information available from the application process focused on the programme reach, including number of applicants and Fellows in comparison with the total number of schools, country geographic regions and type of school (private, public state, public federal), gender, academic rank and discipline of Fellows and number of schools with multiple Fellows. Data also were obtained from a retrospective pre/post survey instrument[28] completed at the end of each of the two residential sessions, based on self-ratings of knowledge and importance of curriculum topics (instrument available on request). The questionnaire asks respondents to "rate the importance to you" of a series of curriculum topics on a scale from 1 (none) to 7 (very high), with separate rating scales for "before FAIMER" (retrospective pre-test) and "today" (post-test). The second portion of the survey asks respondents to "rate your skills, knowledge or competence to address" each of the same topics on a scale from 1 (none or no skill) to 7 (expert, teach others), both pre and post. The Post-Session 1 electronic survey, starting for session 1 in the 2008 class, offered 32 (open and close-ended) questions under seven topic subscales including: Change Theory and Management; Personal Professional Development; Educational Methods; Electronic Mentoring and Learning Web; Assessment and Student Performance; Educational Programme Evaluation; and Project Management. The Post-Session 3-survey analysis included 14 (open and closed-ended) questions distributed under four topic subscales: Building a Community of Educators; Distance Learning; Whole Systems Models to Sustain Change; and Qualitative Methods.

The types of educational innovation projects were assessed by the themes of the projects (all four classes). Most projects included more than one theme and the two judged by two reviewers (SF and EA) as most relevant for the project were included in the analysis. In addition, the proportion of projects that were completed for all classes and resulted in the preparation of a poster and an abstract (Year 1 outcomes) was calculated. Information about the status and impact of the projects was obtained from an on-line portfolio. The portfolio asks Fellows, through a combination of structured and open-ended items, to reflect on the FAIMER experience, the progress of their FAIMER projects, their advice to FAIMER and their professional accomplishments since starting the FAIMER experience. All classes were asked to complete the "accomplishments" portion of the portfolio (13/20, 65% of 2007; 8/25, 32% of 2008; 17/25, 68% of 2009; 22/25, 88% of 2010 completed this portion). Only 2007–2009 classes were asked to complete other portions of the portfolio; these questions are designed to be used first by Fellows near completion of the programme (16/20, 80% of 2007; 11/25, 44% of 2008; 14/25, 56% of 2009 completed). Scholarly outcomes of projects for these classes, measured as presentations at national and international meetings, were identified through review of the conference proceedings of the Brazilian Congress on Medical Education (COBEM) and the Association of Medical Education in Europe (AMEE) meetings from 2007 to 2010.

Data analyses

Demographic and electronic portfolio data were analysed via descriptive statistics. For the retrospective pre-post questionnaire, means, standard deviations and effect size were calculated for each pre/post topic subscale for both importance and knowledge/skills. Effect size (standard mean difference between paired post-participation and pre-participation ratings) was calculated by using the average paired difference between post-participation and pre-participation ratings as the numerator and the standard deviation of the paired differences as the denominator, considering effect sizes of 0.8 or greater as large.[29] Internal consistency of responses for both pre and post responses within each topic sub-scale of the retrospective pre/post survey was calculated via Cronbach's alpha. The internal consistency coefficients for Session 1 survey topic areas ranged from 0.84 to 0.95; for Session 3 internal consistency for each topic area ranged from 0.81 to 0.96.

Results

The reach of FAIMER BR

Analysis of the 251 applications showed an average of 2.4:1 for the 100 places offered in the first four classes, with an increase in candidates for 2010, with a more competitive application process and reduction of the acceptance rate [Table 1]. Figure 2 shows the broadening reach of the programme, with 65% (17/26) of all Brazilian states being represented among the Fellows by 2010. The range of Fellows from each school was

Table 1: Reach of the FAIMER BR, as evidenced by cumulative applications and fellows

	2007	2008	2009	2010	Total
Completed/total applications (#/total, %)	91/91 100[a]	53/151 35	36/134 27	69/178 39	249/575 43
Fellows accepted/completed applications (#/total, %)	25/91 28	25/53 47	25/36 69	25/69 36	100/249 40
Fellows who completed the programme (#/total, %)	23/25 92	25/25 100	25/25 100	23/25 92[d]	96/100 96[c]
Schools represented	19[b]	19	18	22	49[c]
Repeated schools from previous classes	0	19[b]	14	17	--

[a]All completed paper applications for 2007 and on line applications beginning in 2008. [b]Same school can be represented in more than one column. [c]Includes 44 schools of Medicine, 1 school of Pharmacy, 3 Nursing and 1 Dentistry. [d]Programme to be completed in 2012

Figure 2: Geographic distribution of fellows accepted for the 2007– 2010 classes at the FAIMER BR

Table 2: Major themes of the educational innovation projects for FAIMER BR (n = 95[a])

Theme	N	%[b]
Alignment with health system	32	34
Curriculum revision/integration	26	27
Teaching methods	23	24
Faculty development	15	16
Student assessment	15	16
Distance and computer-based education	9	9
Programme evaluation	6	6
Professionalism	5	5
Students affairs	5	5
Organizational development	3	3

[a]Only projects of Fellows from Brazil in classes 2007–2010 who consented to participate in the evaluation are included. [b]Total is greater than 100% because projects could receive two theme codes

1–6; there has been a substantial rate of "repeat" schools, that is, 24 schools have nominated a second or third Fellow [Table 1].

Alignment with MoH

Fellows are predominantly faculty from public medical schools (74/98; 75.5%) and from schools with MoH grants (88/98; 89.8%). There has been an increasing involvement of medical schools as the government grant programme expanded: 30% (14/46) of the schools received PROMED grants; 28 received Pró-Saúde grants (60.8%); and 73.9% (34/46) received Pet-Saúde grants. The themes of the 98 projects show that one-third mainly focused on alignment with the mission of the Brazilian MoH [Table 2].

Changes in knowledge and skills

The response rate for the retrospective pre-post survey was 73/75 (97%) for the Session 1 survey (2008, 2009 and 2010 classes) and 65/70 (93%) for the Session 3 survey (2007, 2008 and 2009 classes). There were significant changes on all topic subscales of the Session 1 and Session 3 Retrospective Pre-Post surveys, from pre to post self-assessment of knowledge and large effect sizes, ranging from 1.21 to 2.77 [Table 3]. The greatest improvements were reported for whole systems models to sustain change, distance learning, building a community of educators, project management, personal professional development and educational programme evaluation, all greater than 1.90 [Table 3].

Indications of field leadership in health professions education

Almost all Fellows from the first four classes (98%) completed their projects through preparation of abstracts and posters for presentation at the beginning of the second year of the Fellowship and nearly all Fellows completed the second year of the programme (96%). When asked in the portfolio about sustaining and expanding their curriculum innovation project, almost two-thirds of the 41 respondents from the 2007 to 2009 classes (63%) indicated that their projects were being sustained by permanent incorporation into the curriculum and/or policy. Nearly one-quarter of all respondents reported growth in scope to other subjects (22% for all 2007–2009 classes and 56% of the 2007 class). This is not surprising since the 2007 class completed their Fellowship in 2009 and thus had the longest opportunity for project growth. A smaller proportion reported that their project had widened its scope to other objectives (25% from 2007 only, 10% from 2007–2009), other years in the curriculum (19% from 2007, 7% from 2007–2009),

Table 3: Retrospective pre-post survey mean and effect size on self-report about knowledge on specific topics from sessions 1 and 3 at the Brazil FAIMER Regional Institute

Topic areas	*n*	Mean before FAIMER	Mean today	Mean difference[a]	Effect size[b]
Session 1[c]					
Educational methods	71	3.83	5.17	1.34	1.89
Assessment and student performance	69	3.74	5.30	1.57	1.71
Educational programme evaluation	67	3.27	4.78	1.51	1.91
Project management	68	3.13	5.01	1.88	2.09
Electronic mentoring and learning web	69	4.08	5.27	1.19	1.21
Change theory and management	73	3.15	5.22	2.07	1.82
Personal professional development	70	3.99	5.64	1.65	1.96
Session 3[d]					
Building a community of educators	65	3.34	5.18	1.84	2.14
Distance learning	65	2.32	4.24	1.91	2.24
Qualitative methods	64	3.14	4.64	1.49	1.59
Whole systems models to sustain change	64	2.70	4.96	2.26	2.77

[a]All differences are statistically significant ($P<0.001$). [b]Effect size is the standard mean difference between paired post-participation and pre-participation ratings. [c]Session 1 includes 2008–2010 classes. [d]Session 3 includes 2007–2009 classes

other departments (13% from 2007, 5% from 2007–2009) or outside their institution (19% from 2007, 7% from 2007–2009). When asked about the impact of their projects, one-third or more of all 2007–2009 respondents noted that there is more faculty interest in the quality of teaching (49%), more intra-departmental collaboration on education (37%), the curriculum is better aligned with community health needs (34%) and quality of teaching (32%) and student performance (32%) have improved.

When questioned about deepening their knowledge about HPE and development of a community of educators, over one-half of the 41 respondents from the 2007 to 2009 classes read the listserv three or more times per month (58%) and one-third reported contributing to the FAIMER BR listserv more than three times per month (33%). Beyond the listserv, over one-half of the respondents communicated with more than two other FAIMER Fellows per month (59%) and over one-third with more than two FAIMER BR faculty members per month (35%). When asked about what they gained from individual and group communication with Fellows and faculty, the vast majority reported deepening their knowledge (98%) and getting new ideas about medical education (90%). Fifty percent or more reported receiving advice managing conflict (63%), benefiting from the breadth of expertise (54%), research collaboration (50%) and emotional support (63%).

Scholarly products

Over one-half of the 60 respondents to the portfolio reported presentations from their projects (55%). One-quarter (27%) of all respondents reported organizing education conferences or meetings at the national, regional or local level. The 48 Fellows from the 2007 and 2008 classes presented a total of 71, 105, 92 and 62 abstracts, respectively, at 2007–2010 national medical education meetings (called COBEM). The same Fellows presented 3, 0, 13 and 7 abstracts at the Association for Medical Education in Europe (AMEE) meeting during the same period. Six have published 'Really Good Stuff' reports in Medical Education based on their FAIMER BR projects. There is no pre-Institute data on education-related activities for 2007 and 2008 applications, but 2009 fellows reported six education-related presentations (conferences/meetings/workshops as organizer or presenter) on their applications. Moreover, 20 graduates of the 2007–2009 classes have been invited to serve as junior faculty in FAIMER BR and/or mentoring the first-year Fellows.

Discussion

Data from 98 Fellows from the first four classes of the FAIMER BR programme demonstrate the satisfaction of Fellows and their institutions, as well as progress towards a critical mass of health professions educators within their schools, regions and country. The predominance of public schools shows that the FAIMER BR is specifically reaching schools that are at the vanguard of fostering the vision of the Brazilian MoH to offer well-prepared health providers to the national health system. Since FAIMER BR expanded to an interprofessional faculty development programme, Fellows from dentistry, nursing and pharmacy have joined those from medicine, in alignment with the MoH direction for organization of care in health teams.[30]

The retrospective pre/post-test self-report data also indicated positive results, demonstrating a significant increase in perceived importance, knowledge and skills in all 11 curriculum themes of the programme, with large effect sizes. These data are similar to other faculty development

programmes, including the global FAIMER Institute.[13,31-33] The lower means for management and leadership topics reported by the Fellows before the start of FAIMER BR are not a surprise, since faculty have little formal leadership and management training.[2,3] These components were incorporated to facilitate successful introduction of the curriculum innovation project because curricular change also requires leadership and management skills. The retrospective post-pre survey responses show the special value of project management, leadership and personal development for Fellows, as already indicated by others.[2,13,34]

The follow-up survey showed that almost two-thirds of the first three classes reported their curriculum innovation projects were sustained by permanent inclusion in the curriculum or by policy, and almost one-quarter reported that they were able to enlarge the scope of their projects. Almost all the respondents reported that they deepened their knowledge of medical education through the programme listserv, attending the workshops, etc. This is another desired result of leadership development programmes in medical education, motivating faculty for continued self-learning and engagement in communities of practice.[8,11,35]

The FAIMER Institute model[7] intentionally reinforces the bonds between Fellows. FAIMER BR has this focus as well and includes team-building and group dynamics exercises, intensive interaction and dialogue during the residential sessions, evening "learning circles" for sharing personal stories,[36,37] continuous emphasis on development of a "safe" learning environment, creation of on-line e-learning module teams, continuous electronic contact during the non-residential session and encouragement of "social presence" through listserv and scientific events. Local and regional faculty development programmes initiated by FAIMER BR alumni may also create concentrations of educators in Brazil. There has been little intentional encouragement of global professional networks for educators[35,38,39] until the recent appreciation of this essential component.[10] However, the concept has rarely been operationalised for educators from more resource-limited environments; an exception is the global organization, the Network: Towards Unity for Health (http://www.the-networktufh.org).

Additional evidence of impact on Fellows as well on developing the field of HPE in Brazil was found in the resulting scientific presentations on medical education, publications, positions at national institutions and associations, advanced positions in their schools and commitment to FAIMER BR as new faculty members. Such evidence is an important addition to the self-report data.[1,40] Some Fellows have also taken positions in a new certification process for foreign medical doctors who desire to practice in Brazil and positions on specialty board examination processes (data not shown), all evidence of field development.[11] While it is not possible to know if these steps would have been taken anyway without the FAIMER BR programme, the degree of such activity within four years of beginning a Fellowship is notable. The rapid growth of careers in HPE suggests a relevant role for the experience as FAIMER BR Fellows and the power of the network.

This initial process evaluation of the FAIMER BR programme has several limitations. First, there is a need for more time to search for outcomes in institutions and communities. The longest follow-up is for the first class (2007) that completed the programme in February 2009. Second, there is the inherent challenge in evaluating such a complex educational programme where changes evolve gradually over time with many potential contributing factors.[23,25,26,41-43]

It is also important to note that retrospective pre/post methodology is not without limitations.[44,45] This method was chosen to ensure a robust response rate as well as to avoid response bias. Nevertheless, this study included achievements of the Fellows not only during the programme, but also at a period distant enough from the residential sessions to enable later impact on their professional career. Quantitative data regarding presentations, publications and positions can document programme impact and field development.[11,40]

It would be interesting to probe such career advancement further by measuring HPE productivity prior to the Fellowship and in a similar period later.[1] It would also be useful to obtain information from other stakeholders, such as deans of the Fellows' health professions schools.[46] Even more challenging would be direct comparison of the knowledge, skills and career outcomes of FAIMER BR fellows with other faculty interested in advancing as health professions educators who have not undertaken such a fellowship.[47] However, such extensive and labour intensive programme evaluation studies have substantial costs, and generally cannot be supported in resource-constrained countries.

Several lessons can be drawn from the progress evaluation data from the experience of the Brazil Regional FAIMER Institute. First, the intentional alignment of the expectations of stakeholders and faculty who applied, faculty selected, schools, FAIMER, FAIMER BR faculty, MoH, national and international experts on HPE were powerful contributions to success. The programme was implemented at an opportune moment when policies to support a major educational change for health professions were both expected and demanded, and also supported in the country.

Second, a major element for the observed success was the power of the educational design of the parent programme upon which FAIMER BR was modelled and adapted to fulfil national needs.[13,48] Key design features included the

intentional development and fostering of a safe environment in which educators could reflect and develop a community of practice, particularly valued by Fellows. Combining the two major curricular themes –HPE and leadership-management – was another essential element. Finally, the programme stimulated knowledge application focused on a curriculum innovation project designed by the Fellow to meet a real need,[49] and implemented during the Fellowship with advice and support from the faculty and other Fellows.

A third key element was the sharing of expertise, experience, resources and perspectives among national and international faculty. The contribution of joining the global movement on educational changes for health professionals[50,51] was recognized and valued as an important step to increase the value of the health professions educator career in Brazilian universities. Even more relevant, there is an existing body of knowledge and a well-known national movement to improve health professional's education linked to the health system.[16,30,52,53] The Brazilian experience is aligned with the direction recently stated by an international consensus on social accountability of HPE and strengthening health systems.[54,55]

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