Research Article

Comparing a Face-to-Face and Online Faculty Development Program at an Academic Health Science Center

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Abstract

Faculty development programs for educators in medical and health sciences education programs have been shown to have positive and sustained effects. The purpose of the current study was to examine differences in perceptions of a faculty development program offered in face-to-face and online formats at an academic health science center. A 9-session faculty development program designed to enhance curriculum development and presentation skills of faculty was conducted for two academic years. For the first academic year, the program was offered in a face-to-face format and the content was video recorded. For the second academic year, the video recordings were available in an online learning platform for faculty to complete at their own pace. Evaluations were obtained after each session. Participants were 148 (N = 148) faculty, with 90 participating during the first academic year and 58 participating during the second academic year. Forty-five percent of participants were assistant professors and 64% had no prior formal training in teaching. Results indicated that faculty perceptions of relevance of the program content or intention to use program content was not significantly different between those who attended the face-to-face program and those who participated in the online, self-directed learning platform. The findings of this study indicate that faculty does not perceive a faculty development program differently based on the format of presentation and that both formats are perceived positively by faculty in medical and health science education.

Keywords: Faculty development; Medical education; Adult learning; Online learning

Abbreviations

TIME FF: Teaching in Medical Education for Faculty

Introduction

Teaching in medical and health science education is a complex phenomenon requiring an advanced skillset for the clinical or medical educator. Teaching in this unique setting occurs in the classroom, in the lab and at the bedside. According to Harden and Crosby [1], teachers in medical education are information providers, planners, facilitators, assessors, resource developers and role models. They must serve as mentors, on-the-job role models, teaching role models, clinical or practical teachers, student assessors, lecturers, curriculum organizers and curriculum evaluators [1]. Recent advances in learning technologies may require clinical and medical educators to obtain even greater knowledge and skills than in the past to effectively teach and connect with current students enrolled in medical and health science education programs [2]. Despite these many demands on educators in these settings, many lack formal training or preparation for this professional skillset and greater training in teaching effectiveness is needed [3]. Thus, faculty development initiatives that emphasize teaching and learning principles and advance academic and professional goals are highly recommended [4].

Faculty development programs designed to increase teaching effectiveness have been employed at various academic health science institutions and the literature indicates that these programs are beneficial [5, 6]. Cole et al.'s [5] study of faculty completing a longitudinal seminar program designed to promote reflective learning and address such concepts as adult learning principles, effective feedback and leadership skills found that faculty participants regarded the program favorably and reported increased positive self-appraisals of teaching and professional skills. Steinert et al. [6] conducted a systematic review of faculty development efforts on teaching effectiveness among basic and clinical scientists in medical education. Based on 53 papers between 1980 and 2002, the authors concluded that faculty development initiatives resulted in positive outcomes. Specifically, high satisfaction, improvements to attitudes toward teaching, changes in teaching behaviors and increased educational knowledge and skills were noted [6]. Additionally, faculty who has participated in faculty development programs have reported sustained positive effects on their teaching and professional skills over time [7-9].

It is clear from the current literature that faculty development programs are an effective way to promote positive change and self-perceived improvements even though the delivery and content of these programs have varied across studies. Programs highlighted in the literature utilized varied formats, including lecture, experiential learning, seminars and workshops. Their content focused on several

Table 1: Session Topics and Learning Objectives for Teaching in Medical Education for Faculty.

Session 1: Teachers and Learners
Select appropriate instructional strategy
List functions of course content
Identify the role of the instructor in course design
Describe adult learners
Session 2: What Are You Teaching When (You Think) No One is Looking?
Characterize the concept of educational ethics
Identify the duties of an educator
Analyze any differences for the faculty of an academic health science center
Characterize the hidden curriculum
Explore the spectrum of ethical dilemmas for faculty of an academic health science center
Session 3: Creating Expectations
Create learning objectives
Select assessment strategies
Align assessment with instructional strategies
Use assessment to build on prior learning
Session 4: The Technologies of Teaching
Distinguish between different types of learners
Identify methods for matching teaching style with technology tools
Explain reasons to utilize technology in teaching
Session 5: Engaging the Large Group
Identify the needs of the audience
Describe ways to increase the student and instructor interaction in the classroom
Design effective PowerPoint slides
Recognize advantages of using interactive classroom strategies
Design effective clicker questions to assess audience comprehension
Section 6: Innovative Teaching
Appraise ability to apply problem based learning techniques in teaching
Appraise ability to apply hybrid instruction and/or team based learning techniques in teaching
Session 7: Teaching Outside the Classroom
Characterize why graduate (Ph.D.) education should change
Identify obstacles that may hinder change
Describe three important skills a Ph.D. student should acquire during training
Identify barriers to effective clinical teaching
Utilize time efficient strategies for improving teaching during clinical activities
Session 8: Providing Feedback
Identify effective principles to conduct formative and summative evaluations
Utilize criterion-referenced assessment tools in clinical education
Provide effective written feedback for student growth
Session 9: How to Help Students
Identify the need for student support
Employ strategies to manage escalating situations with students and trainees
Discuss resources available to faculty and students

topics and themes, such as time management, leadership skills and feedback and evaluation. Steinert et al. [6] recognized that the context of an organization and needs of the targeted participants are important considerations that may affect the delivery and content of each unique program. However, adherence to fundamental features in faculty development effectiveness may be important. Based on their review, the authors found fundamental features of effective faculty development programs to be the use of adult learning principles, experiential learning, varying methods of instruction, feedback and peer support. Future research should strive to identify more explicit elements and approaches of faculty development programs, such as face-to-face instruction versus online modules, which result in positive outcomes [6].

The purpose of the present study was to examine faculty perceptions of the content included in a faculty development program delivered via face-to-face and online formats. Faculty in medical and

health science education at an academic health science center were offered a seminar series based upon adult learning principles and designed to improve faculty teaching and professional skills. The goal of the current study was to examine differences in perceptions of a faculty development program between faculty participants receiving face-to-face instruction and those participating in online, self-directed learning.

Materials and Methods

Faculty development program

Teaching in Medical Education For Faculty (TIME FF) was a program offered to faculty at an academic health science center in the southeastern United States. The goal of the program was to enhance curriculum development and presentation skills of faculty in an effort to improve the learning experiences of learners at all stages of their education. The course included fundamental educational topics such as developing course objectives and effective presentation skills. Additionally, the course encouraged innovative ways to reach adult learners by including content related to active learning and educational technology. It was composed of nine sessions and was delivered by sixteen experts from the six schools represented at the institution (dentistry, graduate studies, health related professions, medicine, nursing, and pharmacy).

The course was developed by administrators in the institution's office of academic affairs with the guidance of an advisory committee representing all six schools on campus. The content was based on a thorough review of the literature and on the lessons learned from a similar program administered previously to medical residents at the institution. The session topics and learning objectives can be found in Table 1.

All faculties were eligible to participate. The course was advertised via the institution's intranet homepage, the informational screen saver on all networked computers and an informational email delivered to all faculty affiliated with the institution. Faculties interested in participating were required to complete a brief registration form, which requested information about their degree, school affiliation, academic rank and prior training in teaching. Participation was voluntary and faculty was allowed to participate in as many sessions as they chose. However, a certificate of completion for the program was provided only to faculty who completed all nine sessions. For each of the nine sessions, participants were required to view the 1 hour presentation and complete a related homework assignment that required 1-2 hours of time. Participants submitted their homework assignments to the TIME FF coordinators, who assessed the assignments and provided feedback. Participants were asked to complete an evaluation form at the conclusion of each session.

Participants

Participants were 148 (N= 148) faculty at an academic health science center in the southeastern United States. Of this number, 90 (n= 90) faculty registered for the TIME FF program delivered via face-to-face instruction during the 2012-2013 academic year. These participants were affiliated with the following schools: medicine = 50 (56%), dentistry = 17 (19%), health related professions = 8 (9%), nursing = 5 (6%), pharmacy = 4 (4%), other = 4 (4%), and graduate studies in the health sciences=2 (2%). Participants' faculty ranks were

as follows: 38 (42%) assistant professors, 29(32%) associate professors, 15 (17%) professors and 8 (9%) instructors or other. Fifty-three (59%) participants reported receiving no formal training in teaching (e.g., formal degree, certification, specialty training) beyond a workshop or course. Of the 90 registered participants, 40 (44%) completed all nine sessions and received certificates of completion.

Fifty-eight (n = 58) faculty registered for the TIME FF program delivered via an online, self-directed learning platform (i.e., Blackboard Inc.) during the 2013-2014 academic year. These participants were affiliated with the following schools: medicine = 42 (72%), health related professions = 5 (9%), dentistry = 4 (7%), nursing = 4 (7%), other = 2 (3%) and graduate studies in the health sciences = 1 (2%). Twenty-eight (48%) participants were assistant professors, 14 (24%) were associate professors, 11 (19%) were instructors or other and 5 (9%) were professors. Forty-one (71%) participants reported receiving no formal training in teaching (e.g., formal degree, certification, specialty training) beyond a workshop or course. Of the 58 registered participants, 18 (31%) completed all nine sessions and received certificates of completion.

Instrument

An evaluation form was designed to obtain feedback from participants at the end of each session. This form was designed to evaluate each learning objective for each session using the same six items: knowledge prior to the program, knowledge after the program, relevance, importance, intent to use and recommendation of the program to others. All items utilized a 6-point Likert scale, with 0 being lowest and 5 being highest. The evaluation form included an additional item requesting information about participants' knowledge about the upcoming session topic and five open-ended items soliciting voluntary comments.

For the purpose of this study, only ratings of relevancy (i.e., "Relevance to my job") and intention to use in practice (i.e., "Intent to use") were utilized. The ratings of relevancy for all objectives within each session were averaged to derive a total relevancy score for each session for the 2012-2013 academic year. The ratings of intention to use for all objectives within each session were averaged to derive a total intention to use in practice score for each session delivered via face-to-face instruction during the 2012-2013 academic years. The same procedure was utilized to derive total relevancy scores and total intention to use scores for each session of the faculty development program delivered via an online, self-directed learning platform during the 2013-2014 academic year.

Procedure

The 2012-2013 program was made up of nine sessions, which occurred monthly over the course of nine months. These 1-hour face-to-face seminars occurred at the noon hour and lunch was provided for all participants. Each session was presented by content experts from the institution who had been selected by the advisory committee. The sessions were delivered in lecture format and were video recorded. Participants in attendance were given the opportunity to submit a paper version of the evaluation form at the end of each seminar. The form was anonymous, and completion was not mandatory. Homework was completed and submitted between sessions. Homework assignments were related to session topics and focused on improving faculty teaching. The assignments required

Table 2: Means and Standard Deviations for Faculty Ratings of Relevancy and Intention to Use for Face-to-Face and Online Formats of a Faculty Development Program.

	Face-to-Face Format			Online Format		
	n*	*M*	*SD*	*n**	*M*	*SD*
Session1						
Relevancy	23	5.47	0.62	24	5.63	0.52
Intent To Use	23	5.55	0.47	24	5.65	0.50
Session 2						
Relevancy	25	5.69	0.49	15	5.71	0.36
Intent To Use	25	5.75	0.41	15	5.71	0.36
Session 3						
Relevancy	17	5.32	0.62	12	5.46	0.76
Intent To Use	17	5.38	0.50	12	5.42	0.80
Session 4						
Relevancy	16	5.33	0.78	8	5.41	0.55
Intent To Use	16	5.36	0.76	8	5.53	0.47
Session 5						
Relevancy	22	5.36	0.73	9	5.40	0.67
Intent To Use	22	5.40	0.65	9	5.60	0.56
Session 6						
Relevancy	14	5.07	0.94	10	5.00	1.25
Intent To Use	14	4.89	1.12	10	5.05	1.21
Session 7						
Relevancy	14	4.71	1.04	10	4.30	0.98
Intent To Use	14	4.73	0.98	10	4.52	1.12
Session 8						
Relevancy	14	5.26	0.64	11	5.18	0.91
Intent To Use	14	5.60	0.51	11	5.27	0.95
Session 9						
Relevancy	20	5.25	0.65	10	5.73	0.58
Intent To Use	20	5.55	0.53	10	5.77	0.55

*n denotes the number of evaluations completed for that session.

faculty to apply the new information learned in each session to their current teaching responsibilities and were graded as pass or fail.

During the 2013-2014 academic year, the nine video recordings of the nine sessions and all other program materials were available via an online learning platform (i.e., Blackboard Inc.). All materials, including homework assignments, were identical to those used during the 2012-2013 programs. Participants were allowed to view sessions and complete homework assignments at their own pace over the course of 9 months. Participants were able to complete an electronic version of the evaluation form for each seminar, which they submitted online. The form was anonymous, and completion was not mandatory.

Results

Independent t-tests were utilized to compare faculty ratings of relevancy for each of the 9 sessions of the faculty development program delivered via face-to-face instruction and each of the 9 sessions delivered via the online, self-directed learning platform. These analyses did not indicate a significant difference between the two groups for any of the 9 sessions, respectively: $t = -.95$, df = 45, p = .35; $t = -.13$, df = 38, p = .90; $t = -.52$, df = 27, p = .61; $t = -.25$, df =

22, p = .80; $t = -.13$, df = 29, p = .90; $t = .16$, df = 22, p = .87; $t = .98$, df = 22, p = .34; $t = .26$, df = 23, p = .80; and $t = -1.99$, df = 28, p = .06. The means and standard deviations for faculty ratings of relevancy are reported in Table 2.

Independent t-tests were utilized to compare faculty ratings of intention to use for each of the 9 sessions of the faculty development program delivered via face-to-face instruction and each of the 9 sessions delivered via the online, self-directed learning platform. These analyses did not indicate a significant difference between the two groups for any of the 9 sessions, respectively: $t = -.65$, df = 45, p = .52; $t = .36$, df = 38, p = .72; $t = -.14$, df = 27, p = .89; $t = -.58$, df = 22, p = .57; $t = -.81$, df = 29, p = .43; $t = -.33$, df = 22, p = .75; $t = .48$, df = 22, p = .63; $t = 1.09$, df = 23, p = .29; and $t = -1.04$, df = 28, p = .31. The means and standard deviations for faculty ratings of intention to use are reported in Table 2.

Discussion

The purpose of the present study was to examine faculty perceptions of the content included in a faculty development program, TIME FF, delivered in two different formats, face-to-face and online. Faculty representing six schools of medical and health science education at an academic health science center participated in the faculty development program. The program was delivered as a seminar series, was based on adult learning principles and was designed to improve both teaching and other professional skills. Specifically, the goal of the present study was to examine differences in perceptions between faculty participants receiving face-to-face instruction and those participating in online, self-directed learning.

Results indicated that faculty perceived the faculty development program favorably. This is consistent with prior research suggesting that programs designed to improve teaching effectiveness are perceived positively by educators in medical and health science education [5-7]. Overall, faculty perceived the content of the TIME FF program to be relevant to their work, and no significant differences were noted between those who participated in the face-to-face program and those who participated in the online, self-directed program. Results also indicated that faculty intended to use the information learned from the TIME FF in their work. Again, no significant differences were noted between those who participated in the face-to-face program and those who participated online.

Both face-to-face and online, self-directed versions of the same TIME FF program were perceived positively by medical and health science educators. This indicates that online versions of faculty development programs should be considered for faculty development initiatives at academic health science centers in the future. However, long-term sustained effectiveness has not been established for online programs and was not assessed in this study. Because researchers have found sustained positive effects of traditional faculty development programs, [7-9] future studies are needed to determine if online and self-directed faculty development programs have the same benefits.

The TIME FF program that was first delivered as a face-to-face, monthly seminar series required coordination of space, speakers and lunches. Additionally, there were costs associated with scanning badges to monitor attendance, providing paper materials and evaluations and offering lunches to participants. Once the program

was converted into an online, self-directed program, there were minimal costs associated with the program. Therefore, the findings indicating that both versions were positively perceived by faculty support the use of online resources as a way of distributing educational information and managing faculty development programs in the future. Online distribution of information may be perceived as positively as face-to-face delivery, may be more time efficient and may be more cost effective. Additionally, this format allows faculty to participate at their own rate and when it is most convenient for them. Despite the potential benefits, some faculty may be hesitant to engage in online or self-directed learning modules. This may be seen as a limitation and should be addressed by future research.

The TIME FF course was developed as a centralized faculty development opportunity available to all faculties at the institution. The content was based on a thorough literature review and with the guidance of an advisory committee of content experts, representing all six schools on campus. Because the participants represented all schools in the academic health science center, the results may be generalizable to multiple medical and health science educators. However, generalizability may be limited due to the fact that all participants were from the same academic health science center in the southeastern United States.

The TIME FF course was offered during two consecutive academic years. Only the face-to-face program was available the first year, and only the online, self-directed version of the same program was available the second year. Faculties were not able to select the format of the program in which they participated. Therefore, faculty participants likely chose to participate in the program as they became aware of the opportunity and had the time to dedicate to the program. They did not likely choose to participate in the program based on whether it would be delivered via face-to-face instruction or online. However, participation in the program was completely voluntary. Thus, another limitation of the study is participants' self-selection to participate in the TIME FF program and voluntary completion of program evaluations.

Conclusion

The TIME FF was positively evaluated by faculty across the institution. Overwhelmingly, the faculty reported that the content was relevant to their work and that they intended to use the information going forward. TIME FF and other similar faculty development programs may be delivered in face-to-face formats and in online, self-directed formats. Faculty positively perceived both forms of information delivery. Future research should continue to explore alternate methods and formats for delivering new information and improving faculty development initiatives for teachers in medical and other areas of health science education. Future research should also focus on measuring the sustained long-term effects of online, self-directed faculty development programs as compared to face-to-face programs.

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