

CONFERENCE EVALUATION

Summary of Findings: Pre-Conference and Post-Conference Surveys

NSF Women in Engineering Leadership Development Conference
Salt Lake City, Utah

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TABLE OF CONTENTS

INTRODUCTION	3
Demographics	5
Other Imp. Prior Experiences Identified by Participants	8
Expectations and Perceptions	9
POST-CONFERENCE EVALUATION SURVEY	13
Conference Event Ratings.....	13
Conference Outcomes.....	13
Suggestions for Future Conferences	16
OBSERVATIONS RELATED TO SURVEY FINDINGS.....	18
APPENDIX A: PRE-CONFERENCE SURVEY RESULTS.....	19
APPENDIX B: POST CONFERENCE SURVEY RESULTS.....	32

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INTRODUCTION

This report presents pre- and post-conference survey results for the NSF Women's Engineering Leadership Conference in Salt Lake City, Utah in November 2003. This conference is part of a larger series of conferences sponsored by the Women in Engineering Leadership Institute, whose primary mission is to facilitate institutional change from the "grass roots" and to ensure that a larger pool of women engineering faculty is ready to enter the academic administrative ranks. As part of this mission, the conferences are designed to ensure that women have equal access to the knowledge, preparation, and mentoring required for assuming leadership positions by fostering the training and networking of women across all types of academic institutions.

The series of conferences, funded by the National Science Foundation, the University of Utah, the University of Texas El Paso, the University of Connecticut, Guelph University, Canada, Syracuse University, Louisiana State University, and the University of Central Florida includes two professional development conferences for women engineering faculty interested in exploring academic leadership opportunities; one advanced leadership workshop for women engineering faculty who are seeking more advanced, specialized training; one summit to bring together professionals from academia, industry and government; and the establishment of a virtual (digital) presence for the Women in Engineering Leadership Institute as a web site¹ to highlight the professional development conferences, provide information on electronic mentoring, disseminate training materials and assessment results, and provide links to other similar organizations.

This conference was the first of two **Leadership Development Conferences** to be held regionally and structured as 3-day events. The conferences are modeled in the style of the Gordon Conferences, with daily activities and discussion forums. The conference mission is to inspire women in engineering to careers in academic leadership. While each of the Leadership Development Conferences may choose a slightly different theme, all of the conferences are intended to assist participants in examining various leadership models, roles and positions in academia, responsibilities of leadership positions, and the types of skills needed for such positions. The conferences are organized to include several common modules geared towards disseminating basic information on:

- The types of leadership roles, both positional and non-positional, that can be assumed and the individual career paths that can be taken toward these leadership roles;
- The development of a network to encourage and enhance relationships that will extend beyond the meeting; and,
- Exposure to the types of skill needed for successful leadership.

¹ <http://www.weli.eng.iastate.edu/index.asp>

One of the key features of each of the Leadership Conferences is the inclusion of current or past women engineering leaders as speakers and panelists. The inclusion of speakers with firsthand experience was a highlight of the 1st Women in Engineering Leadership Conference held in October 2000. The hosting institution for each conference is responsible for the development of specific regional theme activities and coordinating the logistics of the conference.

The Salt Lake City Conference program was designed to blend philosophical and career-related discussions with other faculty and current women administrators with an introduction to certain types of leadership skills. The conference began with an overview of the status of women in engineering leadership and a discussion of the first conference held at Winter Park. From there, participants were organized into groups to discuss issues in a “Fireside Chat.” The following day, women in the positions of engineering deans and department chairs gave talks, which tended to be more informal, providing chronologies of career advancement and reflections on academic philosophies. The evening speaker was a female University president. Each attendee also participated in a 2-hour media training session. The focus of the second full day was on skill development. The agenda included presentations on fundraising, academic leadership, uses of body language, and legal issues in academic leadership. The final day focused on how conference participants could continue progress and included a talk on electronic mentoring and a conference wrap up.

A total of 29 women attended the conference with nearly every field of engineering represented (Table 1). Women were selected based on nominations from deans, chairs, and participants from the 1st Women in Engineering Leadership Conference in 2000. Everyone who applied to the conference was accepted. In terms of nominations, future conferences should focus on using the previous participants and chairs to circulate conference information. While some deans did respond, the majority did not and the organizers had to call and request candidates multiple times.

Table 1. Participants by Eng. Fields

Field	Frequency	Percent
Civil & Envir.	7	24.1
Electrical	8	27.6
Industrial	4	13.8
Mechanical	5	17.2
Other ¹	5	17.2
Total	29	100.0

¹ Fields with fewer than four participants were collapsed to protect the confidentiality of responses. Collapsed fields include Chemical Engineering, Computer Science, and Engineering Science.

The conference attendees were surveyed twice, once before the conference and once after the conference. The actual survey instruments are included in Appendices C and D. Twenty-eight of the 29 attendees completed the pre-conference survey and 24 of 29 attendees completed the post-conference evaluation survey. This report summarizes the results of the pre- and post-conference surveys. Suggestions for modifying the next leadership conference are also discussed.

PRE-CONFERENCE SURVEY

The pre-conference evaluation survey was divided into two main sections: demographic and personal assessment and questions aimed at eliciting perceptions of leadership issues and expectations for conference outcomes. Many of the questions involved respondents providing extended answers. These responses can be found in their entirety in Appendix A.

Demographics

From the pre-conference survey (Table 2), nearly 70% of the participants were married with approximately 60% reporting one or more children. Nearly everyone indicated that their father worked fulltime and slightly more than half had a working mother. Approximately 82% of the conference participants attended public high school. The large majority reported receiving tenure within the last 10 years and 31% identified themselves as full professors. Nearly 96% of the participants indicated that their home campus was a balanced teaching-research institution or a major research institution. Participants also reported spending an average of 16.5% of their time on issues related to representation of girls and women in engineering. Finally, approximately 45% of the attendees had received educational grants such as an NSF REU Site or supplement, curriculum development or instruction grant, a Lilly Teaching Fellow, or a GAAAN.

Table 2. Participant Demographics

Demographic	
Married (% Yes)	69.0
Have 1+ Children (% Yes)	58.6
Father Worked Full-Time (% Yes)	96.6
Mother Worked Full-Time (% Yes)	55.2
Attended Public High School (% Yes)	82.8
Received Tenure Within 10 Yrs (%)	79.3
Full Professors (%)	31.0
Type of Institution (%):	
Primarily Teaching	3.6
Balanced Teaching-Research	39.3
Major Research Campus	54.1
Awarded an Educational Grant (% Yes)	44.8
Time Spent on Women/Girls Eng. Issues (%)	16.5

Participants described themselves as ambitious, high achieving, intelligent, with a high degree of autonomy and independence (Table 3). Interestingly, the highest mean rating was ascribed to loyalty/commitment. They also see themselves as compassionate, resourceful, highly adaptable, energetic, and possessing very good interpersonal skills. While participants did rank self-centeredness and loneliness relatively low (mean of 2.6), this rank was not far below a 3.0, indicating neutrality. Participants were also more neutral about their degree of patience.

Table 3. Participant Self-Descriptions

Aspect	Mean (1=Low; 5=High)
Loyalty/Commitment	4.6
Independence	4.4
Perseverance	4.4
Autonomy	4.3
Energy	4.1
Perceptiveness	4.1
Initiative	4.1
Adaptability	4.0
Interpersonal Skills	4.0
Intelligence/Related Aptitudes	4.0
Compassion	4.0
Resourcefulness	4.0
Curiosity	4.0
Ambition	3.9
Self-discipline	3.9
Achievement	3.9
Self-awareness	3.9
Intuition	3.9
Self-confidence	3.8
Kindness	3.8
Generosity	3.8
Creativity	3.7
Leadership	3.7
Tolerance	3.7
Risk-taking	3.6
Humor	3.5
Assertiveness	3.5
Spontaneity	3.5
Sociability	3.5
Physical Appearance	3.4
Patience	3.0
Self-centeredness	2.6
Loneliness	2.6

Nearly all the participants (86%) reported that mentoring was important or very important for career advancement in academic administration (Table 4), with the majority reporting that they had no mentor themselves (59.3%). Slightly less than half the participants were currently serving as a mentor. Attendees were also asked if they were interested in becoming department chair. Approximately one-third responded no, 20% indicated yes, and 41% indicated they were unsure.

Of those responding no, primary reasons given as a sense there was too little return on the investment of time and energy it took to do the job, concern that personal research and teaching goals would be compromised while serving as chair, and the lack of a positive environment or the university support necessary to ensure success. Of those responding yes, most identified a desire to introduce new perspectives and shape the future as the primary reason for their interest in becoming department chair.

As noted earlier, however, the largest proportion of those responding indicated uncertainty about becoming department chair. The most frequently cited concern was the perceived stress and extensive time commitments associated with the position. A number of participants also stated concerns regarding departmental climate, “

“...I have some natural ability to navigate politics, the idea [of] testing and extending these skills is intriguing. In addition, our department is so disfunctional I have some sense of responsibility. However, this sense is countered by the desire to just build a research program and remove myself from what some times appears to be uncontrollable chaos.”

Finally, it is also interesting to note that of those indicating they were unsure about being department chair, most also indicated they were very interested in non-positional leadership. That is, leadership outside the normal administrative roles.

Table 4. Career-Related Demographics

Aspect	
Mentoring Important/Very Important	86.2
Have a Mentor (% Yes/No)	40.7/59.3
Am Currently a Mentor (% Yes/No)	46.2/53.8
Interested in Becoming Dept. Chair: ¹	
No	34.5
Unsure	41.4
Yes	20.7

¹. One person did not respond to this question

Attendees were also asked to identify the two most important prior experiences for chairs (Table 5). Many prior experiences were identified, but two were cited most often: 1) managing a large program and 2) working with the university governing structure. Many participants felt that building and running a large research program or complex initiative provided critical experience in working with teams and developing and managing budgets. Experience working within the department and campus governing structure was also cited as critical for developing a broader sense of faculty talent and performance, a deeper knowledge of policies, programs, and procedures, and a better understanding of the needs of the institution.

Table 5. Two Most Important Prior Experiences for a Chair

<i>Identified by Most Participants</i>	
-	Experience managing large groups
-	Active participation in and successful coordination of Dept or Academic Senate Committees
<i>Other Imp. Prior Experiences Identified by Participants</i>	
-	Fiscal management experience
-	Experience mentoring faculty
-	Excellence in teaching
-	Conflict resolution training
-	Working closely with higher administration

In describing how accessible the experiences noted in Table 5 were to attendees, many respondents indicated that service-related leadership was accessible at the department level, “*I could gain experience managing people in the sense of chairing committees.*” At the university level, however, several participants noted that gaining experience through service on important committees was sometimes difficult, “*Although some experience is gained by serving on committees at higher levels, the development of good working relationships with higher levels might involve "golfing" or "going out for beer" of which I do neither.*” Most participants agreed that the most accessible experience available to them was the development of a strong research program, “*Building a research program- I feel that this is most in my control.*”

When asked to identify a single prior experience they would look for in candidates for a dean’s position (Table 6), the majority identified serving as a department chair. Participants also identified building and managing a large research program or initiative, serving as a Center Director, etc. as other important experiences (*Other*). When asked to identify what they thought their colleagues looked for in a candidate for a dean’s position, again the majority identified serving as department chair. The next most frequently cited experience was serving as an associate dean or dean at another institution. However, for both responses, service as a department chair was clearly the most often looked for prior experience.

Table 6. Key Prior Experiences for a Dean

<i>Prior Experience Participant Most Likely to Look For:</i>	%
Chair of Ac. Senate Com.	3.6
Dept. Chair	71.4
Dean/Assoc. Dean	10.7
Other	14.3
<i>Prior Experience Colleagues Most Likely to Look For:</i>	%
Chair of Ac. Senate Com.	3.7
Dept. Chair	66.7
Dean/Assoc. Dean	18.5
Other	11.1

Expectations and Perceptions

Attendees were also to identify two specific outcomes participants desired from the conference (Table 7). The responses (provided verbatim in Appendix B) generally fell into the same categories used to classify responses to a similar question for the 1st Women in Engineering Conference in 2000. Nearly all participants identified some aspect of career advancement as one, and sometimes both of the desired conference outcomes. The majority of participants also identified development of leadership skills as the one of the most important outcomes desired. A very small number of participants identified greater knowledge about administrative skills as one of the two desired outcomes. One interesting finding is that nearly 20% of the participant responses related to finding models for balancing work-life responsibilities and commitments.

Table 7. Briefly describe two specific conference outcomes you would like:

CATEGORY	EXAMPLE OF PARTICIPANT RESPONSES
<p>CAREER ADVANCEMENT</p>	<p><u>Networking and Mentoring</u>: “An informal network of others struggling at the same stage and people more experienced who have found a good balance between research/teaching/service in career and more broadly in life.”</p> <p><u>Pathways to Administration</u>: “A better understanding of the leadership hierarchy in academia and how one can attain these positions.”</p> <p><u>Understanding Administrative Jobs</u>: “[A better understanding of the] rewards of administration - why should one pursue it? what types of individuals would most likely find it rewarding.”</p>
<p>LEADERSHIP SKILLS</p>	<p><u>Mobilizing Faculty</u>: “How to be a catalyst for change while retaining the involvement of faculty members who have no interest in changing.”</p> <p><u>Principles of Effective Management</u>: “I am being encouraged to consider administration. Would I like it, and how could I learn to be effective as a leader?”</p>
<p>ADMINISTRATIVE SKILLS</p>	<p><u>Practical</u>: “I would like to learn skills and techniques which will be useful not only in formal administration roles, but in technical leadership roles.”</p> <p><u>Management</u>: “Efficient and effective management concepts. Concepts that work at the department/school level as well as the level of a large research team.”</p>

Participants were also asked to identify one question they would like to have answered by deans and chairs during their respective discussion sessions (Table 8). These responses were then provided to speakers prior to the conference. Participant questions tended to be organized along two dominant themes: the development of leadership skills and issues associated with career advancement. With respect to leadership skills, participants were interested in how to lead change among faculty with disparate viewpoints and how to be an effective manager. This issue of effective management arises mostly with respect to workload balancing between faculty members. Participants were interested in hearing chair perspectives related to career preparation for administrative positions such as chair and trajectory issues such as balancing research and service given that someone is chair.

Table 8. Identify one question you'd like discussed by dept. chairs:

CATEGORY	EXAMPLE PARTICIPANT RESPONSES
LEADERSHIP SKILLS	<p><u>Leading Change.</u> “How do [chairs] build community and engage all members in contributing to the success of a department.”</p> <p><u>Principles of Effective Management.</u> “How do you deal with balance between teaching, service and research loads: [not only] with individual faculty members but more importantly between faculty members.”</p>
CAREER ADVANCEMENT	<p><u>Career Preparation.</u> “Did you have any leadership training for this position? If so, was it worthwhile?”</p> <p><u>Career Trajectory.</u> “What part of your job gives you the greatest job satisfaction and what was your greatest challenge in making the transition from faculty member?”</p>

The questions respondents identified for deans also included two categories of information related to leadership skills and career advancement. Participants were looking for information related to the types of leadership skills deans had relied upon to motivate change and the ways in which deans were able to collectively manage college resources. Participants were also interested in a dean’s perspective about the experiences needed for, and the characteristics of a successful department chair.

In addition to the career advancement/leadership questions, there was also a category of questions that might be labeled as “Best Practices.” In these questions, respondents were looking for successful examples of activities leading to change that could be transferred to their home campuses. Nearly all of these questions posed to the deans related to their role in or suggestions for improving the climate for women in engineering. There were a few responses that related to the valuing of teaching and service in relationship to research. Although it might seem to be somewhat unusual to ask about best practices under the circumstances of this conference, the responses may be indicative of a frustration related to climate-oriented issues/solutions on home

campuses or a willingness to initiate institutional change as a non-positional leader given new ideas.

Table 9. Identify one question you'd like discussed by academic deans:

CATEGORY	EX. PARTICIPANT RESPONSES
LEADERSHIP SKILLS	<p><u>Leading Change.</u> “How do [deans] create a culture that promotes greater interdisciplinary research and education?”</p> <p><u>Principles of Effective Management.</u> “When in a building phase (program/faculty development) what are the most effective ways (e.g., rule of thumb) for distributing resources between: personnel, marketing and capital resources?”</p>
CAREER ADVANCEMENT	<p><u>Career Preparation.</u> “What do you view as the two most important prior experiences for a potential department chair? What do you believe are the most important characteristics of a successful department chair? What are the most common mistakes made by new department chairs? What would you have done differently when you were a new dean?”</p> <p><u>Career Trajectory.</u> “What advice could you give to someone who would like to become associate dean (or some other position at the college or university level) without being a department chair?”</p>
BEST PRACTICES	<p><u>Women in Engineering.</u> “Suggested policies/ideas, which I could take back with me, for ‘protecting’ women academics in engineering. ‘Protection’ to reduce biases; protection to reduce overload of minority representatives; all in a way to not damage a woman's career.”</p> <p><u>Valuing Service/Teaching:</u> “Given the current economic climate, what can be done at a college level to make better use of limited resources without compromising quality education? As budgets are crunched there seems more emphasis on research funding, but this seems to come at some sacrifice of teaching mission.”</p>

Finally, participants were also asked to identify the three most important characteristics of good leadership. Table 10 summarizes the responses into three categories in order of most responses received. The first category represents indicates those characteristics noted by the most participants, with second and third categories of characteristics each being identified by fewer

participants. The characteristics most often identified in association with good leadership were good communication skills, both as listener and a converser, personal values that included honesty and fairness and being willing to set an example of ethical behavior, and the ability to make and implement informed decisions.

Other key characteristics noted by participants included a programmatic or collective vision, a respected reputation in scholarly and personal conduct, and an ability to foster consensus and to build teams by incorporating multiple perspectives. Among the characteristics identified by 5 or fewer participants included a willingness to take risks and to foster faculty development, and a respect for a broad range of faculty talents within the department. A few participants also noted good organizational skills, dedication, persistence and high energy as characteristics of good leadership.

Table 10. The 3 Most Important Characteristics of Good Leadership

<p><i>Identified by 10 or more Participants</i></p> <ul style="list-style-type: none"> - Good communicator/listener - Honest/Fair/Ethical/Strong Values - Ability to make and implement informed decisions
<p><i>Identified by 5 to 10 Participants</i></p> <ul style="list-style-type: none"> - Has a vision - Respected in the research field - Able to foster consensus/build teams
<p><i>Identified by 5 or fewer Participants</i></p> <ul style="list-style-type: none"> - Willingness to take risks - Interested in facilitating faculty development - Respects balance of faculty talents - Organized - High energy - Persistent - Dedicated

POST-CONFERENCE EVALUATION SURVEY

The post-conference evaluation survey was divided into three main sections: questions aimed at rating specific conference events and speakers, questions aimed at eliciting qualitative assessments related to conference goals and objectives. As with the pre-conference survey, many of the questions involved respondents providing extended answers. These responses can be found in their entirety in Appendix B. Here, the focus is on general trends and categories of assessment.

Conference Event Ratings

Participants were asked to rate panel discussions and speaker presentations on a scale of 1 to 5, with 1 representing *Very Helpful* and 5 representing *Not Helpful*. In Table 11, the results for the panels are shown and in Table 12 for the speaker presentations. Most of the mean ratings for the panel events and speakers indicate that attendees generally found them very helpful. The media training and the chairs panel and discussion on legal issues were among the most helpful talks or events. Most of the speakers were rated very highly. Attendees were more neutral in their overall assessment of the discussion of academic leadership and the presentation by Carol Muller.

Table 11. Evaluation of Conference Panels/Events (N)

Event	1 <i>Very Helpful</i>	2	3	4	5 <i>Not Helpful</i>	Mean
Chairs Panel	14	8	2			1.5
Ac. Leadership	3	5	9	5	2	2.9
Legal Issues	13	7	3			1.6
Body Language	14	4	1	2	2	1.9
Fundraising	6	13	3			1.9
Media Training	20	3	1			1.2

Table 12. Evaluation of Conference Speakers (N)

Event	1 <i>Very Helpful</i>	2	3	4	5 <i>Not Helpful</i>	Mean
I. Bush-Vishniac	13	7	3	1		1.7
J. Gosink	17	7				1.3
A. Weaver-Hart	16	8				1.3
C. Muller	3	4	7	4		2.7

Conference Outcomes

To assess conference outcomes, participants were asked in a variety of ways to evaluate conference goals and objectives. The first question on the survey asked conference attendees to describe two specific personally important conference outcomes. Nearly every participant

identified some aspect of networking and/or the experiential effect of seeing and talking with role models as the most personally important conference outcomes.

With respect to networking, participants expressed significant appreciation for the opportunity to “*Network with so many women faculty*” and the sense of belonging to a “*network of awesome women which will facilitate mentoring, support, leadership*” that the conference imparted to them. Attendees also noted the value of meeting women from other campuses, which gave them opportunity to hear about a range of experiences.

With respect to the importance of talking with role models and being able to hear from these individuals, participants spoke of how speakers gave them confidence that they also could be a leader and made them “*more determined [to] become chair or dean.*” Many expressed appreciation at being able to “[*Meet*] *such impressive women*” and hear their career and personal stories. Many participants noted they felt that the conference had helped them to develop a larger skill set and a better understanding of leadership roles in academia.

Participants were also asked to assess specific conference goals (outcomes) in terms of their personal experience at the conference. These results are shown in Table 13. Participants were clear that attendance had made them feel part of a stronger network of women engineering professors. Participants were in strong agreement that their understanding of leadership in academia and possible administrative paths had increased as a result of attending the conference. One interesting finding is that participants were fairly neutral about whether attending the conference had made them or less interested in an administrative position such as department chair, dean or provost. However, in contrast, there was clear agreement that the conference had significantly increased their interest in an academic leadership position such as center director. Conference attendees also indicated strong support for additional conferences of a similar nature.

Table 13. Evaluation of Conference Outcomes (N)¹

Conference Outcome	1	2	3	4	5	Mean
Feel Part of Stronger Network	16	7	1			1.5
Better Understanding of Ac. Leadership	15	6	2	1		1.5
Better Understanding of Admin. Paths	9	9	5	1		1.9
More Interested in Admin. Positions	1	9	9	1	3	2.8
Less Interested in Admin. Positions	1	3	10	5	4	3.3
More Interested in Leadership Positions	9	8	5	1		1.9
Less Interested in Leadership Positions		1	6	4	12	4.2
Would Encourage Others to Attend Similar Conf.	24					1.0
Would Support Holding Additional Conf.	22	2				1.1

¹ Scale: 1=Strongly Agree; 5=Strongly Disagree

Participants were also asked to identify those aspects of the conference they found most and least helpful. In general, responses can be organized into the broad categories shown in Table 14. In terms of the most helpful aspects, participants cited the presentations, in particular Dr. Gosink’s talk, the program organization, and the opportunity for networking. Attendees noted that the importance of having an opportunity to “...*to connect on a personal/open level with so many*

outstanding women...” was unique and had great personal meaning for many of them. Many reported that the ability to have “offline” discussions with other women faculty in engineering and women leaders in engineering was particularly helpful to them in understanding issues and the personal and professional skills needed for academic leadership.

Table 14. Most and Least Helpful Aspects (N)

<p>Aspect of Conference Found Most Helpful:</p> <ul style="list-style-type: none"> ▪ Presentations ▪ Format/Program Organization ▪ Networking
<p>Aspect of Conference Found Least Helpful:</p> <ul style="list-style-type: none"> ▪ Theory vs. Application ▪ Specific Skills-Related Events: <ul style="list-style-type: none"> - Academic Leadership Discussion - Uses of Body Language

A few illustrative comments related to each of the categories are shown below (all responses can be found in Appendix B):

What aspect of the conference did you find most helpful?

“Joan Gosink’s presentation helped me to see how someone can stay true to themselves and impact significant change”

“The informal discussions after speakers & the activities (CASE STUDIES, HYPOTHETICALS). Also, Joan Gosink’s specific answers to the group’s questions from the pre-conference questionnaires...”

“Interaction among attendees was the most useful outcome.”

The least helpful aspects identified by participants can be generally classified into two categories: theory versus application and specific events,

What aspect did you find least helpful?

“I would have liked to hear more strategies rather than theories with regard to what to do in different situations.”

“Academic leadership was very helpful but we didn’t have enough time to get into a lot of it.”

Several participants expressed a desire for both more hypothetical and more concrete examples of different situations faced by academic leaders. A few participants also indicated they would have benefited from discussion related to non-positional academic leadership and how to organize career steps to progressively move toward leadership positions. In general, however, there were virtually no aspects of the conference that more than three to four participants collectively identified as least helpful.

Attendees were also asked to assess how the conference had changed their perceptions or attitudes about positional and non-positional leadership roles. In their responses, several women spoke of being surprised that they were interested in moving into leadership roles and that they either already possessed or could develop the necessary skills to succeed,

“[The conference] made me realize that I am ready for these opportunities. The conference influenced me to consider a position of dean or provost more seriously...”

“I feel I could do any of these jobs, and, more importantly, could actually find rewards & personal satisfaction in each of them, which was an eye-opener...”

Many conference attendees expressed surprise that speakers holding leadership positions enjoyed their job and felt like they were able to make a difference,

“Reinforced the perception of how time-consuming these positions are, but changed my perception that it was ‘not satisfying’ – at least the women leaders at the conference seem to find them satisfying...”

“I feel very encouraged that there really are women out there making a difference, and their openness and candor makes me feel that leadership really is possible for women...”

Finally, participants were asked how the conference helped to prepare them to overcome the barriers to advancement in leadership positions at universities. Women spoke of feeling “*more aware and informed*” as a result of conference discussions and how “*sheer openness and frankness of individuals was really helpful in breaking down barriers.*” They also noted that the experience of talking with real leaders who can serve as role models was extremely important and informative. A few conference participants noted the need for specific examples on how to advance one’s career. A few also noted that more concrete examples of how to overcome barriers and how to assess the campus and department environments would have been very helpful.

Suggestions for Future Conferences

Attendees also offered a number of suggestions to enhance future conferences. These included suggestions for additional skills development sessions, additional information sessions, and general enhancement to the program organization (Table 15). The types of skills sessions suggested included those associated with negotiation, teambuilding, conflict resolution, and to how better network.

Possible new information sessions associated with conducting more effective meetings, more detailed discussions related to differences between administrative positions (e.g., Provost vs. Dean vs. Chair), and how to take advantage of lessons already learned by women leaders in industry were suggested. Attendees also noted that a session on work-life balance and differences in communication skills between men and women might be useful.

Finally, participants also provided suggestions designed to more rapidly introduce participants to each other early on and to create greater interaction between participants. These suggestions included additional fireside chats with different groups each night, 1-minute sound bites as wrap ups to each session, and an interactive introductory session.

Table 15. Suggestions for Future Conferences

Skills Development:
<ul style="list-style-type: none"> ▪ Negotiation ▪ Teambuilding ▪ Networking ▪ Conflict resolution
Informational Sessions:
<ul style="list-style-type: none"> ▪ Tips for running effective meetings ▪ How to be a good mentor ▪ More information on differences between leadership positions ▪ Understanding more about how men and women communicate ▪ Differences between industry and academic advancement in leadership ▪ Work-life balance
Program Organization:
<ul style="list-style-type: none"> ▪ Wrap-up session with 1-minute sound bites from conference participants ▪ Fireside chats every evening with different people ▪ Introduction activity at the beginning to help people get to know each other ▪ More emphasize on the multiple non-positional pathways to leadership

OBSERVATIONS RELATED TO SURVEY FINDINGS

As noted in the introduction, the leadership conferences have several important objectives,

- To nurture the development of a network to encourage and enhance relationships that will extend beyond the meeting;
- To help identify the types of leadership roles, both positional and non-positional, that can be assumed and the individual career paths that can be taken toward these leadership roles, and
- To help build the types of skill needed for successful leadership.

In terms of these objectives, the conference surveys indicate that nearly all participants identified networking as a key conference outcome. Most participants also identified the opportunity for exchanges with role models as personally rewarding. The participants were unanimous in their assessments that they would encourage others to attend such conferences and nearly unanimous in very strongly supporting additional conferences of this type.

With respect to identifying the types of positional and non-positional leadership positions available, a number of participants indicated a greater desire to talk with individuals considered to be non-positional leaders and individuals who have directed major research centers. Some participants also indicated they would have liked to have heard the personal stories of women who had decided to become chairs and the types of career advancements steps that supported this kind of decision.

It should also be noted that while participants were fairly neutral about their interest in an academic leadership position in both pre- and post-conference surveys, nearly all expressed a strong interest in leadership positions as a result of the conference. Thus, it is important to provide examples of leadership outside the normal administrative roles. However, it is equally important that women's interest in administration continue to be fostered. Consider that in the pre-conference survey, more than two-thirds of the participants identified being department chair as one of the most important prior experiences looked for in a dean's candidate.

In summary, the conference was clearly successful in meeting its goals. In addition, attendees felt the program was generally balanced and well conducted, with a number of participants identifying the Gordon-type conference format as being very useful. In terms of future conferences, in addition those mentioned in Table 15, the following should be considered for the next conference:

- Stress that speakers cover the questions posed by the participants on the pre-conference survey. This will ensure greater feedback between speakers and attendees;
- Consider adding a talk by a single chair (in addition to the panel), perhaps one that has been both a positional and non-positional leader. This will provide greater opportunity for more directed exchanges, and
- Consider adding a panel of non-positional leaders, perhaps including center directors, to help elucidate the range of leadership opportunities these positions can offer.

APPENDIX A: PRE-CONFERENCE SURVEY RESULTS

**Extended Participant Responses
NSF Women's Engineering Leadership Conference, Salt Lake, Utah**

1. Briefly describe two specific things you would like to get out of this conference (e.g., pathways to career advancement in administration, how to be a good chair, etc.):

<ul style="list-style-type: none"> • (1) Currently, there is no collective voice (professional society/organization) for engineering faculty women. How can engineering faculty women from multiple disciplines collectively impact the number and status of academic women in academia? (2) What strategies are successful in changing the climate within engineering academia?
<ul style="list-style-type: none"> • How others balance the demands of family, work and community. The characteristics of a good chair/dean/administrator.
<ul style="list-style-type: none"> • learn more about the responsibilities of a department head (responsibilities that might not be apparent to faculty); network with tenured, senior women faculty
<ul style="list-style-type: none"> • learn academic leadership skills; learn about pathways (including technical ones)
<ul style="list-style-type: none"> • pathways to career advancement, develop opportunities to work with other female engineering faculty and administrators
<ul style="list-style-type: none"> • I am being encouraged to consider administration. Would I like it, and how could I learn to be effective as a leader?
<ul style="list-style-type: none"> • academic leadership skills, interacting with other women engineering faculty
<ul style="list-style-type: none"> • tips on solving dual career issues, addressing the balance of family with work
<ul style="list-style-type: none"> • How to be a catalyst for change while retaining the involvement of faculty members who have no interest in changing. How to chart a path for future administrative .
<ul style="list-style-type: none"> • attributes of a good chair and pathways to advancement. I would also like to hear what the actual demands (in terms of time and balance) are regarding being either a chair or a dean
<ul style="list-style-type: none"> • pathways to career advancement
<ul style="list-style-type: none"> • I would like to learn the steps to become a Dean of Research or a Dean of International Studies and Global Programing in a major research university. What does it take, what paths are available and what is the quickest path.
<ul style="list-style-type: none"> • Learning how to function within environments where the philosophical norms and/or value structure about leadership is in stark contrast to mine; Hearing about PROVEN strategies for navigating the waters toward a technical or administrative leadership position in engineering colleges/schools (recognizing that multiple strategies may exist).
<ul style="list-style-type: none"> • Efficient and effective management concepts. Concepts that work at the department/school level as well as the level of a large research team.
<ul style="list-style-type: none"> • Pathways to career advancement in administration, ideas for increasing number of female students and faculty.
<ul style="list-style-type: none"> • opportunities for career advancement in academics through management but not as department chair
<ul style="list-style-type: none"> • Rewards of administration - why should one pursue it? what types of individuals would most likely find it rewarding; Key advice for succeeding in administration in a man's world
<ul style="list-style-type: none"> • Successful strategies for advancement in administration; Input on ways to prepare for high level administrative positions (program mgmt at NSF, vs chairman of dept, vs director of center, etc).
<ul style="list-style-type: none"> • I would like to understand administrators and how they see their jobs: what the satisfactions and challenges are. I would like to learn skills and techniques which will be useful not only in formal

administration roles, but in technical leadership roles.
<ul style="list-style-type: none"> • A good path to continued development as a faculty person and how to achieve these goals. An informal network of others struggling at the same stage and people more experienced who have found a good balance between research/teaching/service in career and more broadly in life
<ul style="list-style-type: none"> • How to be a leader, what path to take for upper administration
<ul style="list-style-type: none"> • getting action from support staff, using team management style versus dictatorship style
<ul style="list-style-type: none"> • (1) A better understanding of the leadership hierarchy in academia and how one can attain these positions. (2) Knowledge of the processes in academia that lead to change, for example, changes in promotion and tenure review.
<ul style="list-style-type: none"> • How to balance career and family while advancing in administration, What are the ideal types of experience for preparing one for upper administration
<ul style="list-style-type: none"> • What are the most effective methods to balance professional life and parenting? What effective techniques exist to involve women at all levels of engineering?
<ul style="list-style-type: none"> • Meet with/learn from women leaders, pathways to career advancement.
<ul style="list-style-type: none"> • barriers to the academic - industry connections for women
<ul style="list-style-type: none"> • how to be good in administrative work, how to overcome a predominately male environment?
<ul style="list-style-type: none"> • Pathways to career advancement in administration

2. Identify one question you would like to see discussed by *upper administrators* at the conference:

<ul style="list-style-type: none"> • What ways can upper, university level administrators drive change that will impact the climate within engineering colleges?
<ul style="list-style-type: none"> • What would be your goals and aspirations if you were asked tomorrow to become a regular faculty member again and how would you go about your new job to meet those goals?
<ul style="list-style-type: none"> • Is there a potential that Universities can be more flexible in setting major review cycles/timing? For example, can a person negotiate during hiring to have tenure review after 8 years instead of 6? Can more flexibility be built into the process
<ul style="list-style-type: none"> • Does your university currently have a 'teaching tenure track,' and if so, is it effective? If not, what are your thoughts about this trend?
<ul style="list-style-type: none"> • How does a woman leader manage a mostly male faculty? What are specific issues?
<ul style="list-style-type: none"> • What are some of the ways that upper administrators should interact with external influences, such as congressional representatives, university donors, etc? Which university decisions should these people influence, and which decisions should they not influence?
<ul style="list-style-type: none"> • The growing cost of higher education threatens to close the doors of many institutions to families of modest income. Do you see the American university system becoming more "elite" in this sense in the next 20 years?
<ul style="list-style-type: none"> • what are the duties required of this position
<ul style="list-style-type: none"> • Qualities they look for in faculty being considered for administrative positions
<ul style="list-style-type: none"> • combating the "informal" trades and management style established by the old boys
<ul style="list-style-type: none"> • Is self governance effective, when decision must be made how do you motivate rapid progress without overstepping the bounds established by self governance.
<ul style="list-style-type: none"> • What are the most important personal characteristics, background, and experiences that upper administrators look for in a candidate for Dean?
<ul style="list-style-type: none"> • What are the primary challenges in working with all levels of the university & how do you steer a big ship towards new directions
<ul style="list-style-type: none"> • If you have something that you think should be changed in your campus community (beyond your immediate department), what is the most effective way to do this? What are typical barriers and problems, and how do you overcome them, who is involved, and how do you get something accomplished?
<ul style="list-style-type: none"> • What is required to succeed as upper administrator
<ul style="list-style-type: none"> • creative solutions for dual career issues
<ul style="list-style-type: none"> • the possibility of women being administrators
<ul style="list-style-type: none"> • What do you view as the two most important characteristics of a potential engineering dean? What do you view as the two most important prior experiences for a potential dean? What do you believe are the most common mistakes made by new deans?
<ul style="list-style-type: none"> • How do you transform institutional attitudes and unspoken norms that disadvantage women faculty into practices and attitudes that establish a more even and collegial playing field, especially as it pertains to advancing women into leadership positions?
<ul style="list-style-type: none"> • Did you work within the traditional "system" in your advancement, or did you break out of the existing system" to achieve this level of appointment?

<ul style="list-style-type: none"> • What are the priorities at the upper levels of administration? For example, how aware are they of the state of their university's environment at the level of students and regular faculty or is this not typically a priority at the upper levels?
<ul style="list-style-type: none"> • What are the mechanisms for changing university reward structures to be more flexible
<ul style="list-style-type: none"> • What infrastructure can be cost-effectively put in place to support women engineering faculty?
<ul style="list-style-type: none"> • Female faculty retention and advancement.
<ul style="list-style-type: none"> • addressing isolation for women in academic leadership
<ul style="list-style-type: none"> • what kind of personalities are the most successful on the upper administrative?
<ul style="list-style-type: none"> • What are the specific decisions that advanced certain schools in the top-tiered Engineering schools in the nation in the past 10 years and what decisions are likely to produce the same effects in the next 10 years?

3. Identify one question you would like to see discussed by *academic deans* at the conference:

<ul style="list-style-type: none"> • How do engineering faculty women push an agenda to improve the climate (hiring, promotions, etc.) if their dean is unsupportive or supportive but not proactive? Wait for a new dean?
<ul style="list-style-type: none"> • How do you best outline a vision for your college?
<ul style="list-style-type: none"> • Given the current economic climate, what can be done at a college level to make better use of limited resources without compromising quality education? As budgets are crunched there seems more emphasis on research funding, but this seems to come at some sacrifice of teaching mission.
<ul style="list-style-type: none"> • How do you encourage/reward collaboration among colleges on your campus?
<ul style="list-style-type: none"> • What are your primary responsibilities to each of your constituencies (the faculty, the students, the upper administration, the alumni, and the industrial and government sponsors, etc.)?
<ul style="list-style-type: none"> • How can we evaluate faculty for tenure and promotion such that diverse contributions can be justly accounted for (e.g. excellent teaching and student advising vs. research grants vs. publications)?
<ul style="list-style-type: none"> • What is required to succeed as dean
<ul style="list-style-type: none"> • In what ways do they provide support to departments?
<ul style="list-style-type: none"> • When in a building phase (program/faculty development) what are the most effective ways (e.g., rule of thumb) for distributing resources between: personnel, marketing and capital resources.
<ul style="list-style-type: none"> • creative solutions for dual career issues
<ul style="list-style-type: none"> • What advice could you give to someone who would like to become associate dean (or some other position at the college or university level) without being a department chair?
<ul style="list-style-type: none"> • How does one successfully acquire the resources needed for the college
<ul style="list-style-type: none"> • What is it that controls the ever-important "ranking" of a college, and how do you make a difference in this ranking?
<ul style="list-style-type: none"> • employing more women
<ul style="list-style-type: none"> • Why is the engineering culture particularly prone to low participation by women in leadership positions, and what can you do to reverse this trend in a way that does not lead to resentment by the majority?
<ul style="list-style-type: none"> • What do you view as the two most important prior experiences for a potential department chair? What do you believe are the most important characteristics of a successful department chair? What are the most common mistakes made by new department chairs? What would you have done differently when you were a new dean?
<ul style="list-style-type: none"> • what are the duties required of this position and how do women in this position balance career duties and family
<ul style="list-style-type: none"> • What does the upper administration seek in a candidate for available positions?
<ul style="list-style-type: none"> • making the tenure process fair to women
<ul style="list-style-type: none"> • How can the value of voluntary service activities (e.g. committee work) be acknowledged?
<ul style="list-style-type: none"> • Suggested policies/ideas, which I could take back with me, for "protecting" women academics in engineering. "Protection" to reduce biases; protection to reduce overload of minority representatives; all in a way to not damage a woman's career
<ul style="list-style-type: none"> • What are the most rewarding and the most difficult/distasteful aspects of being a dean?

<ul style="list-style-type: none">• How do you create a culture that promotes greater interdisciplinary research and education
<ul style="list-style-type: none">• Are there effective methods for cross-discipline mentoring?
<ul style="list-style-type: none">• Increasing diversity in the college.
<ul style="list-style-type: none">• retaining good women in academia
<ul style="list-style-type: none">• Why such a small number of engineering female faculty become chairs or deans of engineering departments/colleagues?
<ul style="list-style-type: none">• What specific actions would you take to increase research productivity in your school?

4. Identify one question you would like to see discussed by *chairs* at the conference:

<ul style="list-style-type: none"> • Many faculty women say, "I wouldn't want to be a Dept. Chair if you paid me a million bucks!" How can the Department Chair position be presented in a more positive way?
<ul style="list-style-type: none"> • How do you deal with conflicts/jealousies/petty differences among your faculty?
<ul style="list-style-type: none"> • What are some "best practices" for resolving conflict between faculty members?
<ul style="list-style-type: none"> • What part of your job gives you the greatest job satisfaction and what was your greatest challenge in making the transition from faculty member?
<ul style="list-style-type: none"> • How does one build community and engage all members in contributing to the success of a department
<ul style="list-style-type: none"> • Did you have any leadership training for this position? If so, was it worthwhile?
<ul style="list-style-type: none"> • What is the most difficult aspect? What is the most rewarding?
<ul style="list-style-type: none"> • Some departments are very collegial and helpful to each other, and others catfight, or just isolate themselves. How can a chair improve the collegiality in a department?
<ul style="list-style-type: none"> • What is required to succeed as chair
<ul style="list-style-type: none"> • Have you ever made a decision counter to your faculty, and if so, what were your reasons?
<ul style="list-style-type: none"> • Is it possible to have a satisfying personal/family life and be an academic leader?
<ul style="list-style-type: none"> • What is the role of the department in mentoring faculty toward success? Is part of this process to foster a sense of community within the department? So often faculty all seem so busy that simply taking time to discuss teaching philosophy and broader issues seems lost. Building collective vision seems an important task that can be supported at the chair level.
<ul style="list-style-type: none"> • support of women to get tenure position
<ul style="list-style-type: none"> • creative solutions for dual career issues
<ul style="list-style-type: none"> • Pointers on how to allocate time -- how do you keep your research viable. How to manage the "unruly" faculty member. How to institute changes that are in the best interest of the department's future, but unwelcomed by the faculty.
<ul style="list-style-type: none"> • what are the duties required of this position and how do women in this position balance career duties and family
<ul style="list-style-type: none"> • I believe that chairs may be related to department heads or research chairs, in general. With that in mind, I would like to know the best way to get a public funded chair made available to faculty.
<ul style="list-style-type: none"> • Faculty live and die in their departments. The culture in the department defines the day-to-day experience of faculty. You've just started as dept chair in a department that has a long history of poor retention of women faculty. What are the 3 top strategies that you implement to reverse this trend?
<ul style="list-style-type: none"> • How do you deal with balance between teaching, service and research loads: with in an individual faculty member but more importantly between faculty members.
<ul style="list-style-type: none"> • Certain engineering disciplines like civil engineering, biomedical engineering, and chemical engineering have experienced significant increases in the numbers of women students in their departments since the 1970's. Other fields, such as mechanical and electrical engineering, lag significantly behind. What strategies can these departments use to encourage women?
<ul style="list-style-type: none"> • balancing faculty workloads
<ul style="list-style-type: none"> • How to balance faculty work load distributions?

- | |
|---|
| <ul style="list-style-type: none">• Increasing diversity in the department. |
| <ul style="list-style-type: none">• what are the most difficult challenges female department chair face in engineering departments? |
| <ul style="list-style-type: none">• How should teaching/research load be distributed for junior/senior faculty members? |

5. What do you think are the three most important characteristics of good leadership (e.g., a good listener, excellent scholar, etc.):

<ul style="list-style-type: none"> • Vision with action; good listener; willingness to take risks
<ul style="list-style-type: none"> • Honesty, Do their part to help the faculty in any way possible, Strong Mentor
<ul style="list-style-type: none"> • Ethical, honest, fair; respected in the field; interested in development of all faculty; able to recognize the importance of having a balance of talents on the faculty.
<ul style="list-style-type: none"> • good communicator (receiving and transmitting), decisiveness, fairness
<ul style="list-style-type: none"> • Organized, good listener, able to effectively implement plans of action
<ul style="list-style-type: none"> • Problem solver, team builder, honest/straightforward
<ul style="list-style-type: none"> • 1. intelligence and knowledge, 2. decisiveness, 3. assertiveness and energy
<ul style="list-style-type: none"> • listening to existing problems, having creative problem solving abilities, understanding of issues their people are going through and their strengths
<ul style="list-style-type: none"> • excellent scholar, good listener, a person of action
<ul style="list-style-type: none"> • Flexible communication style, Persuasiveness, persistence
<ul style="list-style-type: none"> • good listener, willing to make decisions regardless of popularity, sets a good ethical examples
<ul style="list-style-type: none"> • Honest and high ethical standards; vision; planner and organizer that knows how to delegate and to choose the people that work with him or her
<ul style="list-style-type: none"> • Clear sense of your value system and communication of those values; Effective communicator (both an ability to clearly articulate positions and to listen well), and An ability to make a decision based on said value system, even if it is not supported by all (an ability to function in the face of non-consensus).
<ul style="list-style-type: none"> • Vision, energy/motivator, open mindedness, respected and negotiator.
<ul style="list-style-type: none"> • Decisiveness, ability to foster consensus but not be stymied by lack of consensus, fairness.
<ul style="list-style-type: none"> • willingness to make difficult decisions; awareness of goals and talents of those he/she supervises; fairness in evaluation
<ul style="list-style-type: none"> • Knowing what to handle by executive order and what to delegate; Dedicated to the success of the institution (dept, school, univ) without taking a shallow perspective of magazine ranking criteria; Diplomatic and assertive as necessary
<ul style="list-style-type: none"> • Programmatic vision, ability to adapt, capability to listen and compromise
<ul style="list-style-type: none"> • Integrity: honesty, ethical and open fairness coupled with a professionalism in conduct. Ability to collaborate: that is an ability to communicate clearly, efficiently, and courteously WITH (not to) and an ability to work well WITH a wide variety of others. Ability to organize and prioritize and to use resources wisely
<ul style="list-style-type: none"> • a clear vision and direction that is constant (rather than changing focus frequently) and is followed through; ability to identify good people and delegate responsibilities; ability to build consensus
<ul style="list-style-type: none"> • commitment, honesty, fairness
<ul style="list-style-type: none"> • (1) ability to make an informed decision; (2) good communication skills; (3) respected reputation, including scholarship and personality.
<ul style="list-style-type: none"> • expectation of excellence, service based leadership (in other words, the chair/dean/administrator is their to support the overall goals of the department AND individual faculty members, integrity
<ul style="list-style-type: none"> • knowing how to operate within the system to accomplish goals, ability to incorporate multiple

viewpoints to achieving solutions, ability to direct change
<ul style="list-style-type: none">• Good people skills, strong vision and ability to inspire, strong value system.
<ul style="list-style-type: none">• Excellent scholar, open minded, proactive
<ul style="list-style-type: none">• honesty, confidence, daring
<ul style="list-style-type: none">• vision, diplomacy, organization
<ul style="list-style-type: none">• Good people skills, excellent scholar, fairness.

6. What do you think are the two most important prior experiences a department chair should have:

<ul style="list-style-type: none"> • Supervision and administrative experience
<ul style="list-style-type: none"> • Technical program development in a situation that involves faculty, staff, and students; successful coordinator of sub-group within the department
<ul style="list-style-type: none"> • Experience in leadership - committee chair; faculty senate, etc. Experience where an understanding of the administrative side of the university is gained.
<ul style="list-style-type: none"> • fiscal management (e.g. large research project); (b) being a tenure track faculty member (going through the tenure process)
<ul style="list-style-type: none"> • Work with teams of people (technology/research oriented) and savvy about budgetary/development issues
<ul style="list-style-type: none"> • Leadership development & mentoring
<ul style="list-style-type: none"> • Experience managing a research group, excellence in teaching.
<ul style="list-style-type: none"> • Experience in University Administration (such as faculty council), Have personally built a strong research program.
<ul style="list-style-type: none"> • chair of dept undergrad/grad student affairs, chair of academic senate committee, program director, etc. - needs knowledge of policies, programs, and procedures and experience dealing with them; research area group leader, faculty evaluation committees - needs knowledge of faculty research areas and opportunities, faculty activities and performance
<ul style="list-style-type: none"> • It would be good for them to really understand the issues their faculty are facing such as the effort it takes to secure good research funding, and the stresses of P&T issues
<ul style="list-style-type: none"> • research, teaching and service
<ul style="list-style-type: none"> • Wide variety of teaching experiences. Management of a complex project (either research with several other faculty PIs or service with real authority).
<ul style="list-style-type: none"> • leadership of large teams of independent thinkers, interaction with upper university administration
<ul style="list-style-type: none"> • budget management; honest and fair
<ul style="list-style-type: none"> • Some type of leadership position within a large committee or center; Strong history so that they are recognized within their profession and university as a scholar; {This is an attitude - not an experience} - a healthy hesitancy to have power. Those who have a thirst for the power should not be department heads.
<ul style="list-style-type: none"> • Leadership and conflict resolution
<ul style="list-style-type: none"> • Being a faculty member in that department.
<ul style="list-style-type: none"> • experience managing a budget; experience managing people
<ul style="list-style-type: none"> • (Note answers are respect to performance, not to selection. I believe chairs are often selected based on irrelevant criteria); Budget management; Extensive experience in a variety of committee at all levels to have a broad perspective on the functioning and needs of the institution
<ul style="list-style-type: none"> • large research project management, management training
<ul style="list-style-type: none"> • (1) Experience with (or knowledge about) every field represented in the department. (2) Experience at developing good working relationships with higher administration levels, i.e., to already know how to work with the higher levels.
<ul style="list-style-type: none"> • Successfully mentoring students all the way through to the PhD. Evidence of successful professional

acollaborations.
<ul style="list-style-type: none"> • leading a committee, research group, etc; experience participating at all levels from departmental, college, nation-wide panels/committees
<ul style="list-style-type: none"> • Academic experience in a similar institution, interdepartmental and national committee leadership positions
<ul style="list-style-type: none"> • Some level of administrative experience, knowledge of day-to-day requirements of a department.
<ul style="list-style-type: none"> • Departmental administrative duties such as departmental committee chair or associate chair.
<ul style="list-style-type: none"> • research management, other management experience
<ul style="list-style-type: none"> • being chair of a major department program or similar experience in a professional organization
<ul style="list-style-type: none"> • Excellent scholar, experience in a better school

APPENDIX B: POST CONFERENCE SURVEY RESULTS

**Post-Conference Survey – Extended Participant Responses
NSF Women’s Engineering Leadership Conference, Salt Lake, Utah**

1. Briefly describe two specific things that you consider to be personally important outcomes of this conference:

<ul style="list-style-type: none"> • I hadn't really thought about 'leadership w/o title' where you can affect change w/o an official position - much of what I do - so I can see ways to practice good leadership. Gives me ease and confidence. • The specific ideas and suggestions, both formal and informal, were <u>great</u>. Fabulous speakers. Nice group expertise. Very valuable use of 3 days.
<ul style="list-style-type: none"> • Meeting such impressive women • Hearing how other institutions are addressing women's issues in engineering
<ul style="list-style-type: none"> • Networking with engineering women in academia • The start of something 'big' - a momentum to provide focus for engineering women in academia
<ul style="list-style-type: none"> • Networking and listening to successful women academic leaders • Hearing the story of how they got to their positions (I would have like to hear Dr. Niemeier's personal story about being chair)
<ul style="list-style-type: none"> • Networking with so many women faculty • Found open discussion of pros/cons of leadership very helpful
<ul style="list-style-type: none"> • I finally understand what it is that deans do and I think I could do it (although I do not want to) • I have some tools to deal with some problems I had been having
<ul style="list-style-type: none"> • Now I am part of this network of awesome women which will facilitate mentoring, support, leadership • Encouragement to overcome the barriers that we face as women
<ul style="list-style-type: none"> • Meeting other women academics in engineering • Understanding some of the challenges of admin
<ul style="list-style-type: none"> • Gained confidence that I can be a leader • Make me more determined that I become chair or dean
<ul style="list-style-type: none"> • The networking of people • Inspiring success stories
<ul style="list-style-type: none"> • Leadership qualities that I can develop and project • Focusing on a few important tasks; not diluting my efforts across random service activities
<ul style="list-style-type: none"> • Input on my dual career couple situation • Learning from others being so open about their experiences (both speakers and participants)
<ul style="list-style-type: none"> • Networking • Learning about 'real life' cases of women in power - academia positions to reach, and how to move into those positions
<ul style="list-style-type: none"> • Networking! Knowing people I can talk with outside my usual space • Information I learned in all the sessions
<ul style="list-style-type: none"> • People I have met • Help on negotiating package associated with new leadership positions
<ul style="list-style-type: none"> • Meeting very successful female engineering profs and hearing their stories • Getting a broad overview of roles of chairs/deans.
<ul style="list-style-type: none"> • Focus for my next steps • Larger skill set
<ul style="list-style-type: none"> • I am further in my career than most attendees. I gained renewed insight into the issues of some of my more junior peers, which should be helpful for mentoring. It also helped me realize that I have already gone over some of these (real or perceived) hurdles. • I think that I was motivated to move more quickly on my own decisions regarding university administration.

5. What aspect of the conference did you find most helpful?

<ul style="list-style-type: none"> • Friday's presentation, all of which were awesome
<ul style="list-style-type: none"> • Joan Gosnick's presentation helped me to see how someone can stay true to themselves and impact significant change; meeting other women with similar concerns
<ul style="list-style-type: none"> • The Gordon format; interactive sessions
<ul style="list-style-type: none"> • Networking; media training
<ul style="list-style-type: none"> • Many powerful talks. I think the sheer openness and frankness of individuals was really helpful in breaking down barriers between leaders and real women
<ul style="list-style-type: none"> • The informal discussions after speakers & the activities (CASE STUDIES, HYPOTHETICALS). Also, Joan Gosnick's specific answers to the group's questions from the pre-conference questionnaires. I guess this sums up to interactions.
<ul style="list-style-type: none"> • Being able to connect on a personal/open level with so many outstanding women – I would never have had such an incredible opportunity without this conference.
<ul style="list-style-type: none"> • Meeting other women academics. Personal "stories" given by speakers.
<ul style="list-style-type: none"> • The media training, the leadership discussion.
<ul style="list-style-type: none"> • The network • Personal stories
<ul style="list-style-type: none"> • Talking with other women engineers about career life, leadership • Hearing about different career paths through engineering/leadership
<ul style="list-style-type: none"> • Gathered ideas on how I can work with some of my concerns in my skill level to move forward into leadership position.
<ul style="list-style-type: none"> • Hearing from leaders, their challenges, their successes.
<ul style="list-style-type: none"> • The breadth of subjects covered • Great location & coordination
<ul style="list-style-type: none"> • Everything. Organization, friendship, information shared – thanks to all of the organizers.
<ul style="list-style-type: none"> • The sessions were excellent & worthwhile • Opportunity to meet & talk with many female engineering professors with leadership aspirations
<ul style="list-style-type: none"> • The legal presentation was very useful & a topic I hadn't known much about.
<ul style="list-style-type: none"> • Networking with other women faculty. • Understanding personal + professional skills & sacrifices associated with leadership positions.
<ul style="list-style-type: none"> • Everything
<ul style="list-style-type: none"> • Legal issues • Informal discussions offline • Body language – although I wished we were told how to control our emotions more in tense situations
<ul style="list-style-type: none"> • Hearing the stories of women deans and chairs who emphasized the importance of staying true to their values as part of their leadership style. • Interaction with wonderful women engineers in a "safe" environment.
<ul style="list-style-type: none"> • Being around other female engineering faculty
<ul style="list-style-type: none"> • Interaction among attendees was the most useful outcome. I also found that Joan Gosink's insights to be honest, thought provoking, and substantive.
<ul style="list-style-type: none"> • Hearing about personal experiences of individual faculty members, alternative career paths, others' visions of leadership, opportunity to meet with role models (I never had this opportunity before).

6. What aspect did you find least helpful?

<ul style="list-style-type: none"> • It was all good
<ul style="list-style-type: none"> • I would have liked to hear more strategies rather than theories with regard to what to do in different situations
<ul style="list-style-type: none"> • Dr. Robinson's lecture was too theoretical. Body language was animated but I am not sure I learned anything
<ul style="list-style-type: none"> • The educational leadership theory talk not distilled enough
<ul style="list-style-type: none"> • Dr. Robinson's talk – it was a great talk to enjoy & the exercise & discussion (group work) were interesting & useful, but the topic was so broad & we had so little preparation.
<ul style="list-style-type: none"> • I would have liked more discussion of "strategies" for success.
<ul style="list-style-type: none"> • Fundraising, not well explained.
<ul style="list-style-type: none"> • Everything was very helpful.
<ul style="list-style-type: none"> • ? Legal → since different @ each university.
<ul style="list-style-type: none"> • The program on fundraising, but only because I've been through that recently at my school so probably beneficial to others.
<ul style="list-style-type: none"> • Dan's leadership presentation was a bit vague in places.
<ul style="list-style-type: none"> • Only having 2½ days together instead of a full week – "gordon" conference type.
<ul style="list-style-type: none"> • Academic leadership was very helpful but we didn't have enough time to get into a lot of it.
<ul style="list-style-type: none"> • Body language presentation – great topic & highly entertaining speaker, but I need more specifics for women working in a male-dominated field.
<ul style="list-style-type: none"> • Robinson presentation. In theory this should have been the most useful talk, but very poor delivery made me lose confidence in the speaker's knowledge.
<ul style="list-style-type: none"> • Leadership portion. I had high expectations on learning skills but instead found material presented too cursory. Wish we spent more time on hypothetical leadership situations.
<ul style="list-style-type: none"> • It was all very useful.
<ul style="list-style-type: none"> • Too much emphasis on administrative leadership. I was hoping to hear more about technical leadership or how to develop a specific agenda for a leadership career
<ul style="list-style-type: none"> • I was really disappointed in Robison's talk – it could have provided a lot more insight. Martinez's talk focused too much on entertainment – she could have communicated more substance.

7. In what ways, if any, did the conference change your perceptions or attitudes about positional and non-positional leadership (leadership from an administrative position such as chair or dean versus other academic leadership roles such as directing a research center, being a full professor or a fellow of your technical society)?

<ul style="list-style-type: none"> • Hadn't occurred to me I was doing any leadership, but from a new perspective I see perhaps I am doing a lot, and <u>that</u> leadership I like. Perhaps management is less interesting, but perhaps those skills too could be learned. The other women actively doing it don't appear unhappy, which is awfully good sign, and I sure learned a lot. Who wouldn't like to be like Ann Hart? She is dynamic and cool. Or Deb [Niemeier]? They can do a lot of good at their schools and seem to enjoy it. Our few women leaders make a big difference. I was relieved to learn a little about training, formal and informal for academic leadership.
<ul style="list-style-type: none"> • I wasn't too sure I wanted to be an administrator, but this conference has helped me gain greater understanding of what the role(s) are and how people balance the multiple commitments
<ul style="list-style-type: none"> • Women who are initially resistant to considering and/or wanting leadership positions can and do change their minds. It would be good to hear one chair tell their story from beginning and end.
<ul style="list-style-type: none"> • Reinforced the perception of how time-consuming these positions are, but changed my perception that it was 'not satisfying' – at least the women leaders at the conference seem to find them satisfying
<ul style="list-style-type: none"> • I am fairly conflicted – I will have to sort through the pros and cons. Do have some more inspiration of the importance to grab the lead.
<ul style="list-style-type: none"> • Too much emphasis on administrative leadership. I was hoping to hear more about technical leadership or how to develop a specific agenda for a leadership career
<ul style="list-style-type: none"> • I feel I could do any of these jobs, and, more importantly, could actually find rewards & personal satisfaction in each of them, which was an eye-opener. I am still not sure I want to or will, but I could & have fun doing it.
<ul style="list-style-type: none"> • I feel very encouraged that there really are women out there making a difference, and their openness and candor makes me feel that leadership really is possible for women – even for someone like me that has so many doubts about myself. After this conference I also see that women tend to have specific qualities (such as consensus building) which may even put them at an advantage compared to men.
<ul style="list-style-type: none"> • I am still just thinking about seeking an administrative position. The conference provided more information.
<ul style="list-style-type: none"> • It made me more confident that I can hold such a position.
<ul style="list-style-type: none"> • Understanding the dramatic difference between the role of dean & chair.
<ul style="list-style-type: none"> • Non-positional leadership, serving an important role • The ability to exert significant leadership even if not in a specific administrative role
<ul style="list-style-type: none"> • Focus seemed more on positional leadership, which I've thought I didn't want to pursue. This opened the door to that a bit. I tend to be more interested in non-positional leadership & this gave me lots of tips for how to progress there.
<ul style="list-style-type: none"> • I am definitely not ready yet – but there are some things I feel empowered to implement (mentoring of department faculty).
<ul style="list-style-type: none"> • Now I believe I can better "spot" my deficiencies that I need to fulfill in order to achieve to be in a leadership position.
<ul style="list-style-type: none"> • The conference gave me a better appreciation of why I should consider chair/dean roles as a way to effect change and/or improve our department/college.
<ul style="list-style-type: none"> • Based on Dr. Niemeier's statistics, I now believe there is a real need to actively recruit & encourage women to take leadership positions. I didn't realize our representation was so low.
<ul style="list-style-type: none"> • I have identified for myself that my leaning is towards Research Ctr. Director rather than chair or dean. It fits better with my personality & interests.
<ul style="list-style-type: none"> • Answered a lot of questions about how chairs/deans etc. handle tough issues & manage their time.

7. (con't) In what ways, if any, did the conference change your perceptions or attitudes about positional and non-positional leadership (leadership from an administrative position such as chair or dean versus other academic leadership roles such as directing a research center, being a full professor or a fellow of your technical society)?

<ul style="list-style-type: none">• Clearly made me realize progression to formal leadership too early could be more disastrous than good. Also that we have many opportunities for leadership in informal positions that can be productive & fruitful.
<ul style="list-style-type: none">• I don't consider being a [technical society] fellow a leadership position (I am one). The conference got me thinking more seriously about the positions of department chair and associate dean for student affairs. I think there's no reason I couldn't do these. Still not sure I'd want to... but I'm thinking
<ul style="list-style-type: none">• I hadn't considered non-positional leadership positions as leadership – so it was good to become aware that such positions existed and what it entailed.
<ul style="list-style-type: none">• It made me realize that I am ready for these opportunities. The conference influenced me to consider a position of dean or provost more seriously – previously, I was convinced that I wanted to be a center director.

8. Do you believe women face significant barriers to advancement in leadership positions at universities?

If yes, [how] did conference discussions help you to identify skills to overcome these barriers?

<ul style="list-style-type: none"> Knowing what the most important perceived skills are, and what the importance of career path is. Gotta, gotta, gotta, be dept. chair if you can I think.
<ul style="list-style-type: none"> Hearing strategies (do's and don'ts) from those in leadership positions
<ul style="list-style-type: none"> Actually meeting and hearing women who have been successful in becoming leaders
<ul style="list-style-type: none"> I feel more aware and informed. I appreciated all the speakers who felt free to talk about their personal stories
<ul style="list-style-type: none"> Specific low input/high potential output suggestions, like the Women's Advisory Board. Specific in Teresa Martinez's speech & The Media training (which was superb!). Seeing how others did things successfully & comparing to my own successes and failures.
<ul style="list-style-type: none"> I think the main barrier is functioning in a "man's world". The conference really helped me think about how to "translate" myself – without losing my personal identity and purpose.
<ul style="list-style-type: none"> That there are some women that overcome these barriers.
<ul style="list-style-type: none"> Mostly helping other women overcome these barriers.
<ul style="list-style-type: none"> How for women to better project the qualities of leadership Network women leaders together for support & advice
<ul style="list-style-type: none"> OK to play the image role when I need to as long as I remain true to myself Network development – I tend to be shy. This helped. Strategies for how to make (tough) decisions – helps in dealing w/ conflict
<ul style="list-style-type: none"> Mentor network Excellent program & "how-to" notes
<ul style="list-style-type: none"> The knowledge shared on barriers faced and overcome by colleagues that are on those positions was really helpful.
<ul style="list-style-type: none"> Ideas for how to be more effective (throughout sessions/discussions) Uses of body language by Martinez (<u>excellent</u>) Role models (speakers)
<ul style="list-style-type: none"> I'm not really sure if I gained any new skills. I learned some facts (Niemeier) that may be helpful in making arguments to upper administration.
<ul style="list-style-type: none"> The broad range of skills/topics covered at the conference opened my eyes to many areas I had not thought of – legal & fundraising for example. Specific details from chairs was <u>very</u> instructive in pointing out "areas of improvement" in my dept.
<ul style="list-style-type: none"> Identified characteristics of a good leader, including several items I had not thought of. Clarified issues of body language & legal content.
<ul style="list-style-type: none"> We have unique barriers but they are not insurmountable. Persistence & preparation will naturally overcome.
<ul style="list-style-type: none"> Again, the emphasis on values, fairness, integrity were really heartening and made me think that one can lead and remain true to oneself. All of the talks were helpful, but it was this notion that was most profound.
<ul style="list-style-type: none"> Most of the information was about how to be successful in leadership positions -- not about how to go up the ladder.
<ul style="list-style-type: none"> I feel more aware and informed. I appreciated all the speakers who felt free to talk about their personal stories.
<ul style="list-style-type: none"> My answer should be considered more neutral. The conference speakers focused substantially on personal growth, I believe. Each person is an individual, so this may be unavoidable. Most of the speakers dealt with more personal issues and problems they have encountered as women than substantive insight on how to prepare or to exploit one's own capability to get over hurdles. Joan was an exception.

8. (con't) Do you believe women face significant barriers to advancement in leadership positions at universities?

If no, any suggestions as to what might have helped?

<ul style="list-style-type: none">• But – this conference and conversations have made me realize that others see this issue as very real. I'm not sure if my perspective is based on my discipline (IE) or my university.
<ul style="list-style-type: none">• What should you look for in a dept where you may be considering being chair?
<ul style="list-style-type: none">• Overall, the conference was helpful but I wish there was more emphasis on overcoming the barriers and increasing awareness about them. Several speakers cited scientific works documenting and proving these barriers. It would be helpful to create a web site including copies of these works
<ul style="list-style-type: none">• I think the primary barriers are due to "environment". Discussions of ways to change & improve the environment would be helpful.

9. Do you have topic or activity suggestions for future conferences?

<ul style="list-style-type: none"> Negotiation skills; teambuilding; HR opportunities; how to run effective meetings; more on effective communication.
<ul style="list-style-type: none"> Role playing to proactively deal with difficult faculty; how to be a good mentor; panel discussion on whether women bring unique strengths to engineering/admin/leadership positions.
<ul style="list-style-type: none"> Negotiating skills; handling policy changes at the institutional level; wrap-up session where conference attendees are asked to give 1-minute sound bites or most salient points after each session – present those at the end. Great experience: well planned and well executed.
<ul style="list-style-type: none"> How to start a WIE program; longer media training; questions to ask when you interview for chairs position
<ul style="list-style-type: none"> More on differences & similarities between chair/dean/etc. leadership & certain director/full professor leadership. KEEP THE MEDIA TRAINING!!!
<ul style="list-style-type: none"> I really liked the sociology talk – if there is something to build in learning more about how women & men interact/communicate.
<ul style="list-style-type: none"> Environment. I would also like a broader definition of “leader” – leaders in the sense of being respected, listened to, & having the capacity to bring about changes.
<ul style="list-style-type: none"> Involvement of women and undergraduates into the engineering discipline starting at the middle school and high school level.
<ul style="list-style-type: none"> Concepts for existing deans & chairs (men & women).
<ul style="list-style-type: none"> Fireside chats each evening w/ different groups of ~4-6 people.
<ul style="list-style-type: none"> Introduction activity at the beginning so we get to know names/schools faster.
<ul style="list-style-type: none"> The present program is excellent.
<ul style="list-style-type: none"> Probably to have several deans, associated deans and president of universities sharing with us their stories (as it was done with charm) will be really interesting and helpful.
<ul style="list-style-type: none"> Instead of a total emphasis on the chair → dean → provost route, include a technical pathway such as Center director → VP Research so that we can learn about & think about other pathways.
<ul style="list-style-type: none"> Negotiating skills training Training on use & control of body language Teach them how to say <u>NO</u>
<ul style="list-style-type: none"> Difference between women’s advancement in industry vs. academia. Let’s hear from an expert in industry & have them try to adapt the “Professional Women’s Toolkit” to the constraints of academia (probably very difficult to find the right person who understands both environments in sufficient depth)
<ul style="list-style-type: none"> Dr. Robinson mentioned differences between how men & women view leadership, so more activities/topics that explain differences (like Dr. Martinez’s talk) Can we discuss <u>how</u> to educate male faculty & leaders regarding women? It seems that these <u>men</u> need a conference to educate <u>them</u>. Family issues – do you have to have a house husband? This issue is important for untenured women faculty, too.
<ul style="list-style-type: none"> Conflict resolution techniques Negotiation skills
<ul style="list-style-type: none"> How to run an effective meeting in which everyone can be heard and the goals of the meeting are met. (Actually, I think I’m pretty good at this!)
<ul style="list-style-type: none"> Form groups based on fields and encourage interaction. I would have liked to spend more time with Industrial Engineering faculty.
<ul style="list-style-type: none"> I would recommend having a mix of male and female speakers representing chairmen, deans, and provosts. The number of women is quite limited; most are from small departments or situations that are not mainline in terms of demands. To help women prepare for these positions, the panels need to represent a broader group of people who have been successful