

NDSU Administrative Survey – EXECUTIVE SUMMARY
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The NDSU administrative survey was presented to department heads, deans, and other administrators from February 20, 2014 to March 31, 2014. The items focus largely on administrators' perceptions of gender equity on campus and in their units and attitudes about strategies for change.

Demographics

80 administrators received the survey; 42 (53%) responded. The sample profile is:

1. 21 respondents (50%) are men, eleven (26%) are women, ten (24%) chose not to answer. 29 (69%) respondents are White; thirteen (31%) chose other categories or did not respond.
2. 23 respondents (55%) have been at NDSU eleven years or more, six (14%) for four to ten years, the remainder (four, or 10%) for three years or fewer. Nine respondents (21%) did not answer.
3. The majority of respondents (20, or 48%) are department heads, four (10%) are Deans, six (14%) are assistant/associate Deans or heads, three (7%) are in other administrative positions. Nine (21%) did not answer.
4. Fourteen respondents (33%) indicated an appointment in a STEM college. Ten (24%) indicated appointments in non-STEM colleges (including HDE). One indicated another appointment and seventeen (40%) did not answer this item.

NDSU Climate

Several items tap issues of campus climate. The first is a set of fifteen paired items that ask, for example, whether service expectations are reasonable for men faculty, followed by a parallel item asking whether they are reasonable for women (table two). In general administrators are more positive about the campus climate for men than for women. Statistical tests indicate significant differences in administrators' perceptions for six of fifteen pairs. This differs from 2010, however, in which there were differences for eight pairs.

Eight additional items tap general perceptions of gender equity, e.g., equity in allocation of resources to men and women faculty (table three). Tests of mean differences reveal that women administrators are significantly more negative about gender equity on the NDSU campus – there are significant differences for two these eight items and in both instances women perceive less equity than men. This again differs from 2010, however, in which there were differences for six of the eight items. There are no significant differences between STEM and non-STEM administrators. Tests of differences in means between the 2010 and 2014 administrations also reveal two significant changes in the level of positive agreement about the equitability of policy and practice.

Unit climate

These items tap two dimensions, gender equity in hiring/retention/leadership and department climate for work/family balance. On the first (table four), administrators generally believe they have tried to recruit women and that their unit climates are supportive for women. They are less positive about their units' actual plans to retain and promote women and help them advance to leadership positions, though on all three of these items comparisons indicate significant positive changes since 2010. There are significant differences between men and women administrators in several areas – in general, men are more positive about their unit climates than are women. There are two differences between administrators in STEM and non-STEM colleges (there were none in the 2010 administration); STEM administrators are now significantly more likely to believe that their units would benefit from more women in applicant pools and leadership positions.

The items that tap work/family balance show that administrators generally believe their units have policies to support efforts to balance work and family (tables five and six), and administrators in 2014 are more likely than those in 2010 to

believe their units have supportive policies for faculty with new babies/children. Most of the significant differences in the perceptions of men and women administrators on these issues have disappeared in this administration, and for the most part this indicates a rising level of awareness of work/family issues for men administrators. There are no significant differences between STEM and non-STEM administrators.

Policy

There are two sets of policy-oriented items in the survey, the first taps attitudes about NDSU policies aimed at increasing gender equity (tables seven and eight); the second taps attitudes about ADVANCE FORWARD initiatives (table nine). The analysis reveals a consistent pattern: there is broad consensus that such NDSU policies are valuable. Similarly, respondents view ADVANCE FORWARD initiatives as valuable. There are some significant differences between the levels of agreement for men and women administrators, and all are in the direction of greater levels of approval among women, e.g., in the value of required training for search committee chairs. STEM administrators general do not differ from non-STEM administrators, except in their more positive view of partner hiring and the FORWARD department award (tables seven and nine).

Conclusions and implications

In this second administration of the administrator survey, to the extent that administrators perceive differences, they continue to see to see the climate as more difficult for women than men. Where differences between men and women administrators appear, women continue to be less positive than men. At least some of the previously significant differences in administrators' perceptions of the opportunities of men and women faculty and between men and women administrators have disappeared, however. Almost all of these focus on changes in policy and practice, e.g., the tenure process, and the development of plans to move women faculty into leadership positions and to retain and promote women faculty.

There were few differences between STEM and non-STEM administrators in either administration of the survey. The two that did appear both reflect positive attitudinal changes around gender equity, as in the perception among STEM administrators that their units would benefit from more women in applicant pools and leadership positions (table four) and in the benefit of partner hiring (table seven). There are many items on climate and policy for which attitudes did not change significantly between 2010 and 2014, and a few for which more negative perceptions developed (as in perceptions of the fairness of the process of promotion to full professor).

The challenge for NDSU, as it has been for all of the ADVANCE-IT programs, will be to maintain the momentum it has built. The rich assessment data collected through these six years of the program should be used to guide the shape it will take going forward. Research about what works to foster diversity in the private sector suggests that structures that embed accountability, authority, and expertise (affirmative action plans, diversity committees and taskforces, diversity managers and departments) are the most effective means of increasing diversity. Every ADVANCE-IT program has faced challenges in institutionalizing. The NDSU FORWARD program has built considerable goodwill among administrators through a very robust program of grants, workshops, and programs. 81% of administrators who responded to this survey believed that FORWARD has helped to create transformation in the direction of gender equity on the NDSU campus. This suggests that there should be broad support among administrators for institutionalization and continuing change in the direction of gender equity.

NDSU Administrative Survey Report
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15 September 2014

The NDSU administrative survey consists of 24 items – many with sub-items – that were presented to department heads, deans, and other administrators from February 20, 2014 to March 31, 2014. The items focus largely on administrators’ perceptions of gender inequality on campus and in units; and specific questions query perceptions of campus climate, community climate, department and university practices, and strategies for change.

1. Response rate and demographics

80 administrators received the survey; 42 ultimately responded, for a response rate of 53%. Table one lists the characteristics of the sample. 21 of these respondents (50%), were men, eleven (26%) were women, ten (24%) chose not to answer this question. 29 (79%) respondents are white, thirteen (31%) chose other categories or preferred not to answer.

The modal position category is department head (N=20, or 48% of the sample). Most who answered the survey have considerable experience at NDSU, 55% (N=23) have been at the university eleven or more years. The modal category of experience in administration, however is three years or less (15, or 36%), and the modal category of appointment is 76% to 100% time (14, or 33%). Fourteen respondents (33%) come from the three STEM colleges (Agriculture, Food Systems, and Natural Resources, Engineering and Architecture, and Science and Math), ten (24%) come from non-STEM colleges, eighteen (42%) of respondents chose “other” or preferred not to answer.

Missing data for all of these questions ranges from 21% (How long at NDSU?) to a high of 40% (College of Appointment). The latter likely indicates concerns about confidentiality, which would not be unusual given the nature of the survey and the small sample size. In the analyses that follow, missing data are excluded from the comparisons between men and women and between STEM and non-STEM administrators (sample means are calculated from all of those who answered the items, regardless of whether they identified their sex or college). As it is very likely that missing data are not distributed equally across categories of interest, missing data, particularly for the key variable of college group, are a potential concern. These concerns are allayed somewhat by the fact that those who chose not to answer the question on college of appointment (but who answered other demographic questions) do not differ on most demographic characteristics – i.e., sex, years of experience at NDSU, years of experience in an administrative position, or percentage time administrative appointment, though they are significantly more likely to be department heads (N=8, or 44%). Exploratory tests also reveal few significant mean differences on climate items between those who provided data for “college of appointment” and those who did not. Where differences are significant (and data allow), I will note this in the analyses to follow.

Table 1: Demographics

	N	Percent
TOTAL	42	100%
SEX		
Male	21	50%
Female	11	26%
Missing/Prefer not to answer	10	24%
RACE		
White	29	69%
Other/Prefer not to answer	13	31%
WHAT POSITION DO YOU HOLD?		
Department Head/Chair	20	48%
Associate/Assistant Department Head/Chair or Associate/Assistant Dean	6	14%
Academic Dean	4	10%
Other	3	7%
Missing/Prefer not to answer	9	21%
HOW LONG AT NDSU?		
3 years or less	4	10%
4 to 10 years	6	14%
11 or more years	23	55%
Missing/Prefer not to answer	9	21%
HOW LONG IN CURRENT ADMIN POSITION?		
3 years or less	15	36%
4 to 10 years	14	33%
11 or more years	1	2%
Missing	12	29%
PERCENT OF APPOINTMENT ADMINISTRATIVE?		
25 percent or less	3	7%
26 to 50 percent	8	19%
51 to 75 percent	7	17%
76 to 100 percent	14	33%
Missing	10	24%
COLLEGE OF APPOINTMENT?		
College of Agriculture, Food Systems, and Natural Resources, College of Engineering and Architecture, College of Science and Mathematics	14	33%
College of Arts, Humanities, and Social Sciences, College of Business, College of Human Development and Education, College of Pharmacy, Nursing, and Allied Sciences, College of University Studies	10	24%
Other Academic Administrators	1	2%
Prefer not to answer	17	40%

Women administrators are not distributed evenly across these categories, though there are no significant differences in the distribution as measured by a chi-square test. They are somewhat less likely to be department chairs (50% of women who answered these questions held this position versus 65% of men) and more likely to be associate or assistant deans (44% of women versus 13% of men). Though a chi-square test is not significant (likely due to sample size) for the distribution across colleges, it is worth noting that 63% of women administrators who indicated a college of appointment (N=5) in the sample are in non-STEM colleges, versus 29% (N=5) of men.

Chi-square tests of differences between STEM and non-STEM administrators on the gender, academic position, experience, and percentage of appointment variables indicate only one significant difference – department heads in the sample come disproportionately from the STEM colleges. Of those who answered both the position and the college group question, ten are in the STEM colleges (77%) are department heads, versus only 20% of those in non-STEM colleges. The modal position category for the non-STEM colleges (50%, or N=5) is associate or assistant dean.

2. Overall NDSU community (items two and three)

Items two and three assess respondents' attitudes about the climate at NDSU as a whole. The question that leads into both of these sets of items is the same: "With respect to the overall NDSU community, please indicate your level of agreement with each item on a scale of 1 to 5, where 1=strongly disagree and 5=strongly agree." There are two types of items in these sections. Most items are direct paired comparisons between respondents' attitudes about the climate for men faculty versus women faculty, e.g., "Service expectations after tenure are reasonable for women faculty," followed by an item that replaces the word "women" with "men." The second type of item directly assesses perceptions of climate, e.g., "Search committees at NDSU receive sufficient resources for gathering a gender diverse candidate pool." I will report results for these types of items in turn.

The pattern of means for these paired items, reported in table two, is instructive. Four of the six items with a mean value of 4.0 or higher refer to men – administrators perceive that the process of promotion to full professor for men faculty is fair ($\bar{X} = 4.18$), that communication between administrators and men faculty is effective ($\bar{X} = 4.08$), that men feel a part of the NDSU community ($\bar{X} = 4.03$), and that men are encouraged to provide suggestions on how to improve the workflow in their units ($\bar{X} = 4.00$). Two of the items with a value of 4.0 or higher refer to women faculty, and point to the effectiveness of mentoring and networking opportunities ($\bar{X} = 4.06$ and $\bar{X} = 4.05$, respectively). It is worth noting that the top ranked items for men faculty and women faculty capture very different characteristics – the items for men focus on policy and practice, e.g., the process of promoting men faculty is fair; the items for women focus on interactions and social relations - women benefit from mentoring and networking opportunities.

The appropriate statistical test for differences in paired items is a "paired samples T-Test." This is a test that assesses whether answers across a pair of items differ for the same respondent; in this case the test

measures whether the respondent feels that a the concept tapped by an item differs for men and women faculty in the NDSU community as a whole. Results of this analysis appear in table two.

Table 2: Paired items for climate with tests of significance (2014)

		Mean	N	Sig.
Pair 1	Service expectations after tenure are reasonable for women faculty.	3.39	38	0.02
	Service expectations after tenure are reasonable for men faculty.	3.84		
Pair 2	Women faculty are disadvantaged by the existing tenure process.	2.25	40	NS
	Men faculty are disadvantaged by the existing tenure process.	1.95		
Pair 3	The promotion process from associate to full professor status is fair for NDSU women faculty.	3.82	38	0.01
	The promotion process from associate to full professor status is fair for NDSU men faculty.	4.18		
Pair 4	Women faculty are disadvantaged by the existing promotion process.	2.10	41	NS
	Men faculty are disadvantaged by the existing promotion process.	1.83		
Pair 5	Women faculty at NDSU respect individual and cultural differences.	3.97	39	0.01
	Men faculty at NDSU respect individual and cultural differences.	3.59		
Pair 6	Women faculty at NDSU are empowered to resolve problems.	3.68	37	NS
	Men faculty at NDSU are empowered to resolve problems.	3.78		
Pair 7	Formal grievance processes are effective for women faculty.	3.50	30	NS
	Formal grievance processes are effective for men faculty.	3.47		
Pair 8	Informal grievance processes effectively address concerns of women faculty.	3.21	29	NS
	Informal grievance processes effectively address concerns of men faculty.	3.28		
Pair 9	Women faculty at NDSU are encouraged to provide suggestions on how to improve the work flow in their unit.	3.89	35	NS
	Men faculty at NDSU who are men are encouraged to provide suggestions on how to improve the work in their unit.	4.00		
Pair 10	Women faculty feel a part of the NDSU community.	3.74	35	0.01
	Men faculty feel a part of the NDSU community.	4.03		
Pair 11	Women faculty at NDSU feel a part of the Fargo/Moorhead community.	3.68	28	NS
	Men faculty at NDSU feel a part of the Fargo/Moorhead community	3.89		
Pair 12	Communication between administrators and women faculty is effective.	3.87	38	0.03
	Communication between administrators and men faculty is effective.	4.08		
Pair 13	The networking opportunities for women faculty are helpful.	4.05	37	0.05
	The networking opportunities for men faculty are helpful	3.76		
Pair 14	The mentoring opportunities for women faculty are helpful.	4.06	36	NS
	The mentoring opportunities for men faculty are helpful.	3.97		
Pair 15	Annual evaluations of women faculty help them advance their careers.	3.92	39	NS
	Annual evaluations of men faculty help them advance their careers.	3.95		

NS = Significance level greater than 0.05

Bold = Difference significant in 2010 survey results

Of the fifteen possible pairs of items, there are significant differences for six pairs, all but one of which essentially indicate advantages for men faculty. Ranked by size of the mean difference, these items capture a perception that service expectations after tenure are less reasonable for women faculty, that women are more likely to demonstrate respect for individual and cultural differences, that the process of promotion to full professor is less fair for women than men, that women are less likely to feel a part of the NDSU community, that networking opportunities for women are MORE helpful than for men, and that women have less effective communication with administrators. Given that this test taps difference within the same respondent (which minimizes variation), this is a very significant pattern of results. Items for which differences are not significant include two on promotion and tenure, four on grievances/problem solving, and one on feeling a part of the Fargo/Moorehead community.

This pattern differs somewhat from the 2010 results, in which there were significant differences for eight of the fifteen pairs. Those differences that remain significant are Pair 1 (service expectations for men versus women), Pair 5 (faculty respect for individual and cultural differences), Pair 10, (feeling a part of the NDSU community), and Pair 12 (effectiveness of communication with administrators). Four mean difference lost significance (Pair 2 – fairness of tenure process, Pair 6, faculty empowered to resolve problems, Pair 8, fairness of grievance processes, and Pair 9, power to improve workflow in units). Two pairs gained significance – Pair 3, on the fairness of promotion process from associate to full, and Pair 13, which taps the effectiveness of mentoring programs for women.

Though it is difficult to infer causality from these two cross-sectional surveys, the changes (and the lack of changes) are interesting. There are some issues on which these administrators believe men and women faculty still differ – unreasonableness of service expectations after tenure for women, the notion that women faculty are more respectful of individual and cultural differences, feel less a part of the NDSU community and communicate less effectively with administrators. The two new differences that appear in this administration likely both reflect FORWARD-related changes – an increased focus on the process of promotion to full (which has likely had the effect of drawing attention to the difficulties women face) and the implementation of mentoring programs for women faculty. The pairs on which differences lost significance – tenure, problems and grievances, and power to improve workflow, all tap policy and practice-related changes. This is a theme that appears throughout these results.

There are eight additional items in these two sections that tap administrators' perceptions of the NDSU climate as a whole for men and women faculty. For comparisons of these items across groups of administrators, independent samples t-tests are appropriate. Results for these items and comparisons across men and women, STEM and non-STEM administrators, and years of survey administration appear in table three. The first column of results indicates the sample mean, the second is the value obtained when subtracting one group's mean from the other (e.g., the mean for men administrators minus the mean for women administrators). A positive value indicates that the reference group's mean (men administrators or STEM administrators) is higher than the comparison group (women administrators or

non-STEM administrators). Year of administration comparisons subtract the 2010 mean from the 2014 mean. Starred values indicates this difference is statistically significant ($p < 0.05$), **bold** values indicate a mean difference that was significant in the 2010 results. ⁱ

Sample means for all of these items indicate a marginal to moderate level of agreement – all are in the 3.2 to 4.1 range. The highest levels of agreement are for the items assessing whether administrators are equally accessible to men and women ($\bar{X} = 4.24$), and in the item assessing whether policies are applied equitably to men and women faculty ($\bar{X} = 4.07$). The lowest level of mean agreement is with the item tapping whether there is a need for institutional transformation at NDSU ($\bar{X} = 3.28$).

	Sample Mean	Men minus Women	STEM minus Non-STEM	2014 minus 2010
Academic Administrators at NDSU are equally accessible to faculty who are men and faculty who are women.	4.24	1.26*	0.04	0.45*
NDSU has an equitable process for nominating faculty who are men and faculty who are women for awards.	3.72	1.66*	0.55	0.11
Policies are applied equitably to faculty who are men and faculty who are women.	4.07	0.42	0.07	0.45*
Search committees at NDSU receive sufficient resources for gathering a gender diverse faculty candidate pool.	3.54	0.57	-0.93	0.44
Resources are allocated equitably to faculty who are women and faculty who are men.	3.58	0.45	0.15	0.35
There is a need for institutional transformation at NDSU to create more gender equality.	3.28	-1.02	0.66	-0.43
Faculty at NDSU (men and women) have a shared sense of mission for the university.	3.64	0.60	-0.13	0.14
On the department level, NDSU has a transparent process for allocating resources to men and women faculty	3.69	-0.10	-0.09	0.40

* Significant mean difference at $p < 0.05$

Bold = Difference significant in 2010 results

There are significant differences between men and women administrators on two of the eight items. The largest mean difference is for the item that taps attitudes about nominations for awards – men administrators ($\bar{X}_{\text{men}} = 4.30$) are significantly more likely than women administrators ($\bar{X}_{\text{women}} = 2.64$) to believe that NDSU has an equitable process for nominating men and women faculty for awards. Men administrators are also significantly more likely than women administrators to believe that academic administrators are equally accessible to men and women faculty ($\bar{X}_{\text{men}} = 4.62$, $\bar{X}_{\text{women}} = 3.36$). Four differences between men and women and women disappeared between 2010 and 2014, three focus on equitability of policies and practices, one taps the perceived need for institutional transformation. No new significant difference appeared during this administration. There are no significant differences in mean values for STEM versus non-STEM administrators on any of these items. There are two items whose mean values are significantly more positive in the 2014 results than in the 2010 results – the items tapping accessibility of administrators and the fairness of the application of policies. As in the case of the paired items, these changes indicate improvements in the area of policy and practices.

Overall, this pattern of difference illustrates a somewhat more pessimistic view of the NDSU gender climate among women administrators, though many significant mean differences have attenuated since the 2010 administration of the survey. Three of the items for which this occurred tap policy, practice, and transparency, which may suggest that some of ADVANCE FORWARD’s efforts in this regard have made a difference. The fourth item taps the need for institutional transformation, for which the mean level of agreement has dropped since 2010 for both women and men. The two significant mean differences between 2014 and 2010 also suggest that changes in policies and practices might have made a difference – these are the items on accessibility of administrators ($\bar{X}_{2014} = 4.24, \bar{X}_{2010} = 3.79$) and equitable application of policies ($\bar{X}_{2014} = 4.07, \bar{X}_{2010} = 3.62$).ⁱⁱ

3. Unit climate – recruitment, retention, promotion and leadership (item four)

Item six taps respondent attitudes on recruitment, retention, promotion and leadership within their units. The statement that leads into these items is: “With respect to campus climate, recruitment, retention, promotion and leadership, please rate your level of agreement with the following statements relating to faculty in your UNIT, on a scale from 1 to 5, where 1=strongly disagree and 5=strongly agree.”

Table 4. Unit Climate Comparisons (2014)

	Sample Mean	Men minus Women	STEM minus non-STEM	2014 minus 2010
My unit would benefit from more candidates who are women in applicant pools.	3.98	-0.05	1.27*	0.27
My unit has actively tried to recruit faculty who are women.	4.56	0.22	0.49	0.11
The climate for faculty who are women in my unit is supportive.	4.30	0.06	-0.39	0.01
My unit has taken steps to enhance the climate for faculty who are women.	4.30	-0.16	-0.39	0.09
My unit would benefit from more faculty who are women in leadership positions (e.g., program coordinators, PTE or search committee chairs, department heads/chairs).	4.10	-0.41	1.10*	0.25
My unit has developed a specific plan to move faculty who are women into leadership positions.	3.03	-0.40	-0.38	0.67*
My unit has developed a specific plan to retain faculty who are women.	3.15	-0.30*	-0.50	0.42*
My faculty unit has developed a specific plan to mentor faculty who are women.	3.50	-0.33*	-0.17	0.40
My unit has developed a specific plan to promote faculty who are women.	3.29	0.00	0.00	0.51*
I would do more for faculty who are women in my unit, but there would be negative reactions from the faculty who are men in my unit.	1.54	-0.21	0.20	-0.11

* Significant mean different at $p < 0.05$

Bold = Difference significant in 2010 results

The pattern of means in response to these questions, reported in table four, is interesting. The highest mean value is for recruitment – administrators generally believe their units have tried to recruit women faculty (item two), and that climates in their units are supportive for women (item three), largely due to successful efforts to enhance that climate (item four). However, respondents also believe that their units would benefit from more women in application pools (item one) and in leadership positions (item five). Administrators are far less positive about their units' efforts to retain and promote women, however; the means for all of these items are among the lowest of any in the table.

There are two significant differences between men and women administrators on these items – men administrators are less likely than women to say their units have specific plans to retain ($\bar{X}_{\text{men}} = 3.15$, $\bar{X}_{\text{women}} = 3.45$) and mentor ($\bar{X}_{\text{men}} = 3.58$, $\bar{X}_{\text{women}} = 3.91$) faculty who are women. These differences were significant in the 2010 results as well, but the direction of the difference has changed. Further analysis reveals that the change in direction comes almost entirely from positive changes in women administrators' attitudes – they are much more likely in 2014 than they were in 2010 to say that their units have specific plans to retain ($\bar{X}_{\text{women2010}} = 2.09$, $\bar{X}_{\text{women2014}} = 3.45$) and mentor ($\bar{X}_{\text{women2010}} = 2.27$, $\bar{X}_{\text{women2014}} = 3.91$) women faculty. Men's attitudes were already relatively positive, and have changed little. One difference between men and women disappeared in this administration; men and women are now equally likely to say that their units would benefit from more women in applicant pools.

There are two significant differences between STEM and non-STEM administrators (there were none in 2010). STEM administrators are more likely than non-STEM administrators to believe that their units would benefit from more women candidates in applicant pools ($\bar{X}_{\text{STEM}} = 4.57$, $\bar{X}_{\text{nonSTEM}} = 3.30$) and from more women in leadership positions ($\bar{X}_{\text{STEM}} = 4.50$, $\bar{X}_{\text{nonSTEM}} = 3.10$). As fewer women serve in such positions in STEM units, this makes sense, but the fact that STEM administrators now strongly favor having more women in these roles may indicate positive attitudinal change in the direction of gender equity.

The mean values for three items changed significantly in the 2014 results, and all three refer to the development of specific plans to promote gender equity – plans to move women faculty into leadership positions ($\bar{X}_{2014} = 3.03$, $\bar{X}_{2010} = 2.36$), retain women faculty ($\bar{X}_{2014} = 3.15$, $\bar{X}_{2010} = 2.73$), and promote women faculty ($\bar{X}_{2014} = 3.29$, $\bar{X}_{2010} = 2.78$). Though these items have relatively low mean levels of agreement, the levels have improved since 2010. Again, this likely indicates positive structural and policy changes, many of which may have been connected to FORWARD initiatives in these areas.

4. Work/family lives of faculty in unit (item 6)

This section of the instrument consists of several combination items assessing work/life balance issues in units. The statement leading into this section is: "Statements with respect to the personal lives of faculty in your UNIT: FIRST, please indicate your level of agreement with each statement on a scale from 1 to 5, where 1=strongly disagree and 5=strongly agree. THEN, please indicate whether you perceive a difference on each statement for NDSU faculty who are women compared to faculty who are men." This is a somewhat unusual item structure. The first part of the question – level of agreement – is standard, and higher values indicate higher levels of agreement. The second part is more difficult to

assess. The response options for this piece of the question are “yes,” “no” and “don’t know.” As the question asks only whether a respondent perceives difference, rather than whether such things are harder for men versus women, theoretically a perception of difference could go in either direction. Table five lists the distribution of responses to the “difference” item for each question.

Table 5. Unit Climate for Work and Family (2014)	Different for Men versus Women? (%)		
	Yes	No	Don't Know
It is difficult for faculty in my unit to adjust their work schedules to care for children or other family members.	18%	64%	18%
It is difficult for faculty in my unit to attend meetings held early in the morning or late in the afternoon due to family obligations.	21%	73%	6%
My unit has supportive policies for faculty with a new baby/child.	25%	66%	9%
My unit has supportive policies for faculty with dependent care responsibilities.	16%	72%	13%
My unit is supportive of new faculty hires who need to utilize spousal/partner hiring.	3%	73%	24%
Faculty in my unit who have children are considered by their peers to be less committed to their careers.	6%	78%	16%
Pace and pressure in my unit have a negative influence on the personal lives of faculty.	16%	72%	13%

Mostly respondents perceive that men and women do not differ on any of these dimensions. Because it is difficult to know the direction of the perceived difference (e.g., it is not clear what it means to say that there is a difference for women faculty in the fact that one’s unit has a child care policy), I did not test for differences in agreement across categories of respondents or years.

Table 6 presents means and comparisons for the levels of agreement with these items. Means range from a low of 1.44, indicating a very low level of agreement, for the item assessing whether faculty who have children are perceived as less committed, to highs of 4.23 and 4.58 for the items asking whether administrators believe their units support spousal/partner hiring and have supportive policies for faculty with new children.

There is only one significant difference in these items between men and women administrators; women administrators are more significantly more likely than men administrators to agree that their units have supportive policies for faculty with dependent care responsibilities ($\bar{X}_{\text{men}} = 3.72$, $\bar{X}_{\text{women}} = 4.64$). This may be because women are less likely to be in STEM colleges and male-dominated disciplines, it could also be due to the fact that they are more likely referencing colleges as their units, rather than departments.

Table 6. Unit Work/Family Climate Comparisons (2014)

	Sample Mean	Men minus Women	STEM minus non-STEM	2014 minus 2010
It is difficult for faculty in my unit to adjust their work schedules to care for children or other family members.	2.06	0.67	0.69	-0.47
It is difficult for faculty in my unit to attend meetings held early in the morning or late in the afternoon due to family obligations.	3.58	-0.72	0.82	0.29
My unit has supportive policies for faculty with a new baby/child.	4.58	0.00	-0.22	0.53*
My unit has supportive policies for faculty with dependent care responsibilities.	4.03	-0.91*	-0.11	0.14
My unit is supportive of new faculty hires who need to utilize spousal/partner hiring.	4.23	-0.19	0.03	0.09
Faculty in my unit who have children are considered by their peers to be less committed to their careers.	1.44	0.08	0.30	-0.32
Pace and pressure in my unit have a negative influence on the personal lives of faculty.	3.24	-0.11	0.44	0.24

* Significant mean difference at $p < 0.05$

Bold = Difference significant in 2010 results

The most striking thing about the comparisons between men and women is that most of the differences in perceptions that were significant during the 2010 administration have disappeared. That may be due to rising awareness of the problems of balancing work and family among men administrators. For example, for the item: “It is difficult for faculty in my unit to attend meetings held early in the morning or late in the afternoon due to family obligations,” men’s level of agreement rose from 2.95 to 3.37. Similarly, men in 2014 were less likely to agree that their units have supportive policies for faculty with dependent care needs in 2014 ($\bar{X}_{men} = 3.72$) than in 2010 ($\bar{X}_{men} = 4.18$). The change for the item capturing whether faculty in units who have children are perceived as less committed has come from the fact that women are less likely to believe this in 2014 than in 2010 ($\bar{X}_{women2014} = 1.27$, $\bar{X}_{women2010} = 3.11$); men’s attitudes have actually changed little ($\bar{X}_{men2014} = 1.35$, $\bar{X}_{men2010} = 1.18$). There are no significant differences between STEM and non-STEM administrators (nor were there in 2010).

There is one significant difference in the comparison of results from 2014 to 2010 – a significantly higher level of agreement in 2014 that one’s unit has supportive policies for faculty with new babies ($\bar{X}_{2014} = 4.58$, $\bar{X}_{2010} = 4.05$). This likely reflects structural policy changes around this issue. The lack of a significant difference for the item on dependent care may mean that such policies are more focused on childcare than more broadly on the care of other dependents, however.

5. NDSU programs for campus climate, recruitment, retention, promotion and leadership (item fifteen)

This section of the instrument consists of a set of policy items respondents are asked to rate in terms of their value. The statement leading into this section is: “Existing NDSU Programs for campus climate, recruitment, retention, promotion and leadership as they relate to faculty in your UNIT: FIRST please

rate your perception of the value of each program to your UNIT on a scale from 1 to 5, where 1=not at all valuable and 5=very valuable. THEN please indicate to what extent you perceive that the program promotes institutional transformation at NDSU with regard to gender.” This is a somewhat unique item structure; I will present results from each part in turn. Though respondents could answer that they had not heard of a particular program, this occurred for few respondents; these responses were coded as missing data. Table seven presents the distribution of these items and differences in mean values on these policy items for men and women administrators, STEM versus non-STEM administrators, and between years of survey administration.

As these responses indicate, respondents perceived all of these programs as moderately valuable, with a low of 2.91 on a five point scale for online sexual harassment training, and mean values greater than or equal to four for extension of the tenure clock ($\bar{X} = 4.50$), on campus child care ($\bar{X} = 4.37$), and spousal/partner hiring ($\bar{X} = 4.25$), and ADVANCE FORWARD programs ($\bar{X} = 4.00$).

Table 7. NDSU Policy Comparisons (2014)

	Sample Mean	Men minus Women	STEM minus non-STEM	2014 minus 2010
Extension of the tenure clock	4.50	-0.49	-0.08	0.10
Spousal/partner hiring	4.25	-0.23	0.55*	0.03
Required training for search committee chairs.	3.79	-1.04*	0.03	0.23
On-line training for search committee chairs.	3.09	-0.21	0.22	-0.24
Required on-line sexual harassment training	2.91	0.37	0.02	-0.26
On campus child care services	4.37	-0.13	-0.17	-0.13
Advance FORWARD Programs	4.00	-0.75	-0.19	0.43

* Significant mean difference at $p < 0.05$

Bold =Difference significant in 2010 results

There were no differences between men and women or between STEM and non-STEM administrators during 2010. In the 2014 results, there is one significant difference between men and women administrators in their views of the value of these NDSU policies, perceptions of required training for search committee chairs. Women ($\bar{X}_{\text{women}} = 4.64$) are more likely to see this as valuable than men ($\bar{X}_{\text{men}} = 3.60$). There is one significant difference between STEM and non-STEM administrators, and this is in the value of spousal hiring, with STEM administrators agreeing more strongly that this is valuable ($\bar{X}_{\text{STEM}} = 4.85$, $\bar{X}_{\text{nonSTEM}} = 4.30$). This makes sense given that STEM administrators in particular are likely to have to accommodate academic partners if they want to hire women candidates. There are no significant differences between years of survey administration, though it is worth noting that the largest increase is in perceptions of the value of ADVANCE FORWARD programs ($\bar{X}_{2014} = 4.00$, $\bar{X}_{2010} = 3.57$). This p value for the independent samples t-test of difference is significant at the 0.10 level, which some would argue is appropriate for measuring significance in a sample of this size.ⁱⁱⁱ

Table eight reports the results for the second part of this question, which asks respondents whether they agree that particular policies promote gender equity. Because of problems with the coding of these items in the 2010 administration of the survey, comparisons are not possible.

These results essentially replicate the findings above – respondents are least positive about online sexual harassment training and most positive about on campus child care and ADVANCE FORWARD programs. In fact 81% of administrators believe these programs help to create gender equity.

Table 8. NDSU Policies for Gender Equity (2014)	Promotes Transformation?		
	Yes	No	Don't Know
Extension of the tenure clock	78%	19%	3%
Spousal/partner hiring	72%	22%	6%
Required training for search committee chairs.	75%	22%	3%
On-line training for search committee chairs.	55%	39%	7%
Required on-line sexual harassment training	41%	53%	6%
On campus child care services	81%	13%	6%
Advance FORWARD Programs	81%	13%	6%

6. ADVANCE FORWARD Programs (item sixteen)

This section lists several ADVANCE FORWARD initiatives and asks respondents to rate their value. The statement leading into this section of the instrument is: “Please rate your perception of the value to your UNIT of each of the following existing NDSU Advance FORWARD programs for campus climate, recruitment, retention, promotion, and leadership as they relate to faculty, on a scale from 1 to 5, where 1=not at all valuable and 5=very valuable.”

Respondents were also offered the option of choosing a response indicating they had not heard of a particular program. These numbers were very low, and I treated these responses as missing data. Table ten reports the mean difference comparisons for men and women, STEM versus non-STEM administrators, and across years. A value of “N/A” indicates that an item about a policy did not appear in the 2010 administration of the survey.

On the whole, respondents rate all of these programs at moderately to highly valuable. The lowest rating ($\bar{X} = 2.90$) is for climate research grants, which is an initiative for which there were a number of difficulties in implementation. Levels of agreement are greater than 4 for the course release program ($\bar{X} = 4.33$), LEAP grant program ($\bar{X} = 4.15$) and leadership development grants ($\bar{X} = 4.15$). There are two differences between men and women in their perception of the value of these programs, in perceptions of the value of LEAP grants ($\bar{X}_{\text{men}} = 3.88$, $\bar{X}_{\text{women}} = 4.67$) and in search committee member training ($\bar{X}_{\text{men}} = 3.74$, $\bar{X}_{\text{women}} = 4.45$). It is worth noting that with the exception of mid-career mentoring, women find all

of these programs to be at least somewhat more valuable than do men. There were no significant differences between men and women administrators in the results from the 2010 survey.

There is only one significant difference between STEM and non-STEM administrators, and it is in the value of the FORWARD department award ($\bar{X}_{STEM} = 3.82$, $\bar{X}_{nonSTEM} = 3.00$). As this was an award given only to STEM departments, this makes sense. The difference observed during 2010 between these groups on the value of junior faculty mentoring has disappeared in this administration of the survey.

Table 9. ADVANCE FORWARD Policy Comparisons (2014)	Sample Mean	Men minus Women	STEM minus non-STEM	2014 minus 2010
Allies/advocates program	3.50	-0.20	0.41	0.18
Climate research grant	2.90	-0.21	-0.11	-0.64
Course release	4.33	-0.19	0.58	0.62*
FORWARD Lecture Series	3.79	-0.72	0.35	0.39
Junior faculty cohort mentoring	3.55	-0.32	0.70	-0.32
Leadership development grants	4.13	-0.40	0.33	0.04
LEAP grant program	4.15	-0.79*	0.25	0.34
Mentor travel grants	3.93	-0.30	-0.15	-0.54*
FORWARD department award	3.07	-0.27	0.82*	N/A
FORWARD training for chairs and heads	3.66	-0.40	0.26	N/A
Mid-career mentoring	3.81	0.02	0.53	N/A
New faculty session on enhancing department climate	3.62	-0.24	0.48	N/A
Promotion to full professor events	3.81	-0.01	0.20	N/A
PTE committee training	3.88	-0.77	0.23	N/A
Search committee member training	3.88	-0.71*	0.05	N/A
Commission on the Status of Women	3.74	-0.72	0.00	N/A

* Significant mean difference at $p < 0.05$

Bold = Difference significant in 2010 results

There are two significant differences across years of the survey. One is in the value of the course release program ($\bar{X}_{2014} = 4.33$, $\bar{X}_{2010} = 3.71$), which may mean that approval increased with exposure to the program. The other significant difference is apparently in the perception of the mentor travel grants, which appears to have grown more negative over time. This is likely entirely due to the fact that these items were written differently on the two versions of the survey – in 2010 the survey referenced “Travel grants” and in 2014 the item was “Mentor travel grants.” This means that the items are not directly comparable.^{iv}

A final set of items from the 2010 instrument, on men’s and women’s perceived motivations to leave NDSU, was not included in the 2014 administration of the survey.

7. Conclusions and implications

This second administration of the administrator survey reveals a complicated picture of continuity, persistent challenges and change. To the extent that administrators perceive differences in climate, they continue to see the university climate as more difficult for women than men – as in the perception that service expectations after tenure are less reasonable for women than men faculty, or that the process of promotion to full is less fair for women faculty (table two). Where differences between men and women administrators appear in perceptions of climate, women continue to be less positive than men, for example, in their lower level of agreement that the university has an equitable process for nominating faculty for awards (table three), or in their consistently more positive view of FORWARD initiatives (table nine).

At least some of the previously significant differences in administrators' perceptions of the opportunities of men and women faculty and between men and women administrators have disappeared in this administration of the survey, however. Almost all of these items focus on changes or improvements in policy and practice, e.g., the tenure process (table one), equitable application of policies and resources (table three), the development of plans to move women faculty into leadership positions and to retain and promote women faculty (table four) and a convergence of views on some aspects of balancing work and family and the importance of work/family policies (table six).

There were few differences between STEM and non-STEM administrators in either administration of the survey, a fact that is likely due in some part to missing data on this item for a large number of respondents. The two that did appear in this administration of the survey both reflect positive attitudinal changes around gender equity, as in the perception among STEM administrators that their units would benefit from more women in applicant pools and leadership positions (table four) and in the benefit of partner hiring (table seven). In general this suggests that attitudes around the issues tapped in the survey are not significantly different for administrators in STEM units versus those who are not.

There are many items on climate and policy for which attitudes did not change significantly between 2010 and 2014, and a few for which more negative perceptions developed (as in perceptions of the fairness of the process of promotion to full professor). This suggests that challenges still remain.

The challenge for NDSU, as it has been for all of the ADVANCE-IT programs, will be to maintain the momentum it has built. Every institution makes decisions about returns on investment – it is in the nature of NSF ADVANCE-IT programs that some costly initiatives are not sustainable after federal funding ends. The rich assessment data collected through these six years of the program should be used to guide the shape it will take going forward.

Though there is as yet no comprehensive assessment that captures how these programs successfully institutionalize, there are some hints from the literature about what works to foster diversity in organizations. For example, Kalev, Dobbin, and Kelly^v have published one of the most comprehensive assessments of various diversity strategies in corporate America. They drew on Equal Employment Opportunity data on 708 companies, gathered from 1971-2002. They compared three approaches: the establishment of structures of responsibility, e.g., policies like affirmative action plans with goals, or

oversight via staff positions; behavioral change through diversity training; and networking and mentoring to decrease isolation for groups in the minority. Their findings were very clear - structures that embed accountability, authority, and expertise (affirmative action plans, diversity committees and taskforces, diversity managers and departments) are the most effective means of increasing the proportions of white women, black women, and black men in private sector management. Mentoring has limited effects, mostly for white women, and diversity training has minimal or sometimes negative effects. The bottom line from this and other research: continued progress for NDSU would be facilitated by designated structures in the form of policies and designated personnel to maintain the momentum of the program.

Every ADVANCE-IT program has faced challenges in institutionalizing. The NDSU FORWARD program has built considerable goodwill among administrators through a very robust program of grants, workshops, and programs. 81% of administrators who responded to this survey believed that FORWARD has helped to create transformation in the direction of gender equity on the NDSU campus. This suggests that there should be broad support among administrators for institutionalization and continuing change in the direction of gender equity.

NOTES

i. In interpreting significance levels for t-tests of mean differences, it is important to note that the size of the raw mean difference is not the only factor taken into consideration when calculating the value of t. The formula for an independent samples t-test is as follows, where \bar{X} stands for the sample mean, s indicates the standard error, N stands for sample size, and μ stands for the population mean (the difference between the two populations means is hypothesized to be zero):

$$t = \frac{(\bar{X}_1 - \bar{X}_2) - (\mu_1 - \mu_2)}{S_{\bar{X}_1 - \bar{X}_2}} = \frac{\bar{X}_1 - \bar{X}_2}{S_{\bar{X}_1 - \bar{X}_2}}$$

$$S_{\bar{X}_1 - \bar{X}_2} = \sqrt{\frac{(N_1 - 1)s_1^2 + (N_2 - 1)s_2^2}{N_1 + N_2 - 2} \left[\frac{1}{N_1} + \frac{1}{N_2} \right]}$$

The t statistic is dependent not only on the size of the mean difference, but also depends on the on the standard error (roughly, the “spread” of a distribution of numbers) and the sizes of the two samples. Hence though raw mean difference is suggestive, it does not by itself indicate that a difference is statistically significant.

ii. There is one item in this group on which the views of those who did not indicate a college of appointment differs from those who did not – the item that taps whether search committees have the resources to gather gender diverse faculty pools. The mean level of agreement for those who chose a college group is 3.96, versus 2.87 for those who did not.

iii. There are three significant mean differences on these items between those who did and did not choose a college of appointment. They are: the value of spousal/partner hiring ($\bar{X}_{\text{college chosen}} = 4.61$, $\bar{X}_{\text{college missing}} = 3.33$), the value of required training for search committee chairs ($\bar{X}_{\text{college chosen}} = 4.22$, $\bar{X}_{\text{college missing}} = 2.80$), and in the value of ADVANCE FORWARD programs ($\bar{X}_{\text{college chosen}} = 4.39$, $\bar{X}_{\text{college missing}} = 3.10$). In all of these cases, those who did not choose a college of appointment were more negative about FORWARD and its initiatives than those who did.

iv. There are four significant mean differences on these items between those who did and did not choose a college of appointment. In all instances, they replicate the pattern on the previous items, which is that those who did not choose a college were more negative about FORWARD than those who did. The differences are on the items tapping the value of the Advocates and Allies program ($\bar{X}_{\text{college chosen}} = 3.91$, $\bar{X}_{\text{college missing}} = 2.60$), the FORWARD department award ($\bar{X}_{\text{college chosen}} = 3.43$, $\bar{X}_{\text{college missing}} = 2.22$), FORWARD training for chairs and heads ($\bar{X}_{\text{college chosen}} = 4.05$, $\bar{X}_{\text{college missing}} = 2.80$), and the new faculty session on enhancing department climate ($\bar{X}_{\text{college chosen}} = 4.05$, $\bar{X}_{\text{college missing}} = 2.50$).

^v. Kalev, A., F. Dobbin, and E. Kelly. "Best Practices or Best Guesses? Assessing the Efficacy of Corporate Affirmative Action and Diversity Policies." *American Sociological Review* 71, no. 4 (August 1, 2006): 589–617.