

External Evaluator Report

New Physics and Astronomy Faculty Workshop

Overview

Between 1996 and 2006, 759 new physics and astronomy faculty representing 344 colleges and universities have attended the annual New Faculty Workshop (NFW) held each fall at the American Center for Physics in College Park, MD. During this 4-day workshop, participants attend sessions on physics pedagogy led by prominent curriculum developers and educational researchers who focus on college-level physics instructional strategies and materials. Attendees at the NFW must be nominated by their department chair and the only cost to the department is transportation to College Park, MD.

During spring and summer 2007, Dr. Charles Henderson was employed as the external evaluator of the NFW. Evaluation activities included a web survey administered to all NFW attendees and a separate web survey administered to all physics department chairs. This evaluation report is organized according to the three major goals provided by the NFW organizers.

Project Goals

The goal of the external evaluation of the New Physics and Astronomy Faculty Workshop project is to provide an informed, external assessment of whether the project is achieving its stated goals, which are:

1. The New Physics and Astronomy Faculty Workshop has reached a large fraction of the physics and astronomy faculty in tenure-track contracts prior to their receiving tenure;
2. The workshop helps participants develop knowledge about recent developments in physics pedagogy and the assessment of changes in pedagogy; and
3. Workshop participants have integrated workshop ideas and materials into their classrooms and it has had a positive impact on their students and their departments.

Goal 1: The workshop has reached a large fraction of the physics and astronomy faculty in tenure-track contracts prior to their receiving tenure.

Data sources

The number of NFW participants attending the workshop each year was supplied by the NFW organizers. All of the NFW participants were on the tenure track, but not yet tenured. The number of tenure-track faculty hired at the assistant professor level each year was obtained from the American Institute of Physics Statistical Research Center, which conducts a survey of physics departments every two years (data from the 2006 survey was not yet available at the time this report was completed):

1998 data: "1997-1998 Academic Workforce Report", AIP Pub. Number R-392.3

2000 data: "2000 Physics Academic Workforce Report", AIP Pub. Number R-392.4

2002 data: "2002 Physics Academic Workforce Report", AIP Pub. Number R-392.5

2004 data: "2004 Physics and Astronomy Academic Workforce Report", AIP Pub. Number R-392.6

Results

A. Number of Participants

Table 1 shows the number of NFW participants each year as well as the number of faculty hires at the assistant professor level for years when faculty hire data was available. The bottom three rows of the table show annual averages. This is, perhaps, the most appropriate way to view the data because new faculty workshop attendees are not necessarily in their first year of a tenure track assignment.

Table 1: Comparison of NFW attendance to number of assistant professor faculty hires.

Year	NFW Attendance	Number of Faculty Hired at Asst. Prof. Level	NFW Attendance as % of Asst. Prof. Hires
1996	49		
1997	56		
1998	58	236	24.6
1999	69		
2000	39*	287	13.6
2001	65		
2002	77	307	25.1
2003	91		
2004	92	307	30.0
2005	86		
2006	77		
<u>Average Per Year</u>			
Grant 1: 1996-2000	54	262	20.6
Grant 2: 2001-2006	81	307	26.4
All Years	69	284	24.3

B. Number of Departments Represented

NFW participants represent 344 distinct colleges and universities. This is approximately 43% of the 797 degree-granting physics and astronomy departments in the US. In addition, 170 departments (21% of all departments in the US) have had more than one faculty member attend the NFW. See Appendix A for a complete list of colleges and universities sending faculty to the NFW.

Summary

The New Faculty Workshop has been successful at reaching a large fraction (~25%) of physics and astronomy tenure-track faculty prior to their receiving tenure. In addition, 43% of all physics and astronomy departments in the US have sent at least one faculty member to the NFW and 21% of all physics and astronomy departments in the US have sent two or more faculty members to the NFW.

* Attendance in 2000 was limited due to lack of funds remaining in Grant 1 (which was originally intended to cover only 3 years of workshops).

Goal 2: The workshop helps participants develop knowledge about recent developments in physics pedagogy and the assessment of changes in pedagogy.

Data Sources

During spring 2007, a web survey was administered to all NFW participants who could be located and who were still in academia. Of the 759 NFW participants, 690 (91%) were still in academia and could be located. Of these, 527 (76%) completed the web survey before analysis began. The complete survey and a summary of all responses can be found in Appendix B. All responses to open-ended questions reported here are reproduced verbatim from the survey. In addition to the survey of all former participants, 59 of the 77 Fall 2006 NFW participants (77%) completed a pre-workshop web survey.

Also, during spring 2007, a web survey was administered to all 794 US physics and astronomy department chairs using an email list provided by the American Institute of Physics. The survey was completed by 206 department chairs (26%). The complete survey and a summary of all responses can be found in Appendix C.

Results

A. Participants believe the NFW informs them about teaching physics

The results from question 10 of the participant survey are shown below. When asked on the web survey, 81.7% of the respondents stated that their participation in the NFW considerably or fully introduced them to new or more in-depth knowledge about teaching physics.

Table 2: Summary of participant responses to web survey question #10.

10. To what extent did your participation in the New Faculty Workshop....	Not at all	Somewhat	Considerably	Fully	Not Sure
Introduce you to new or more in-depth knowledge about teaching physics?	0.6%	16.9%	52.7%	29.0%	0.8%
Help you improve your skills in teaching?	1.5	35.9	47.3	11.8	3.5
Give you new or more in-depth knowledge of issues regarding females or minority students?	25.2	47.8	17.9	3.1	6.0
Help you make contacts with colleagues from other institutions?	9.2	50.9	27.4	10.8	1.7
Increase your motivation to work towards improving your teaching?	0.8	20.5	45.7	31.8	1.2
Help you achieve tenure (or if you are not yet tenured do you expect your participation to help you achieve tenure)?	21.3	41.2	18.2	6.8	12.6
Have a positive impact on your students?	1.3	27.2	47.6	17.1	6.7
Have a positive impact on your department?	4.6	36.4	36.8	12.7	9.4

B. Participants desire to implement NFW ideas

An instructor who is interested in implementing a new idea into their instruction must not only know about the new instruction, but also must have formed a favorable opinion of it. When asked on the web survey, 93.7% of participants indicated that they were interested in incorporating some of the workshop ideas into their teaching.

Table 3: Summary of participant responses to web survey question #11.

11. Right after the New Faculty Workshop weekend were you interested in incorporating some of the workshop ideas into your teaching?	
Yes	93.7%
No	2.1
I don't recall	4.2

C. Knowledge about specific NFW ideas

The response to participant survey question #17 shows that most NFW participants indicate familiarity with the specific physics pedagogical approaches discussed at the NFW either as users, former users, or knowledgeable non-users.

Table 4: Summary of participant responses to web survey question #17.

17. Please rate the following:	I currently use it	I have used it in the past	I am familiar with it but have never used it	Little or no Knowledge (I've heard the name but do not know much else about it or I have never heard of it)
Astronomy Tutorials	8.7%	5.0%	30.2%	56.1%
Collaborative Learning	39.2	17.2	23.0	20.6
Cooperative Group Problem Solving	47.2	21.9	22.9	8.0
Interactive Lecture Demonstrations	46.1	24.2	23.4	6.3
Just-In-Time Teaching	22.9	18.0	50.9	8.2
Peer Instruction	54.1	21.4	22.4	2.1
Realtime Physics	5.2	7.5	46.6	40.7
Personal Response Systems	32.6	15.0	43.7	8.7
Physlets	19.7	21.4	41.3	17.5
Tutorials in Introductory Physics	13.1	20.9	45.8	20.3

As Figure 1 shows, the lack of knowledge about Astronomy Tutorials in the above table is inflated because the tutorials were introduced to the workshop for the first time in 2001. Even after the Astronomy Tutorials were introduced to the workshop, though, the number of participants reporting little or no knowledge remains higher than that of most other strategies. This, perhaps, occurs because NFW participants who do teach astronomy pay little attention to this strategy.

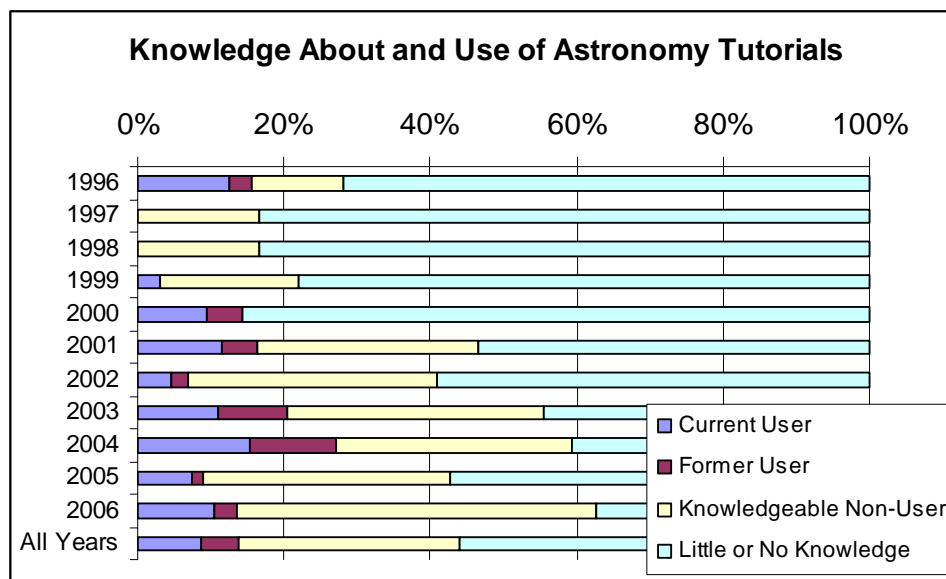


Figure 1: Participant self-reported level of knowledge and use of the Astronomy Tutorials based on the year they attended the NFW.

Table 5 shows that NFW participant knowledge and use of PER-based assessment instruments appears to be much lower than their knowledge and use of PER-based curricula. The lack of familiarity suggests that these instruments (with the exception of the Force Concept Inventory) were not featured prominently in the NFW. The lack of use for those who are familiar suggests that NFW participants may not see the value of using such instruments.

Table 5: Summary of participant responses to web survey question #18.

	I currently use it	I have used it in the past	I am familiar with it but have never used it	Little or no Knowledge (I've heard the name but do not know much else about it or I have never heard of it)
Astronomy Diagnostic Test (ADT)	3.2%	4.0%	25.9%	66.9%
Conceptual Survey in Electricity and Magnetism (CSEM)	8.2	6.5	30.3	55.0
Electric Circuit Concept Evaluation (ECCE)	2.2	2.8	26.1	69.0
Field-Tested Learning Assessment Guide (FLAG)	2.0	1.8	22.5	73.8
Force and Motion Concept Evaluation (FMCE)	4.5	9.7	33.4	52.4
Force Concept Inventory (FCI)	24.3	24.9	37.1	13.7
Mechanics Baseline Test (MBT)	3.9	9.4	41.6	45.1

D. Knowledge of Specific NFW ideas Pre- and Post-NFW

The data on knowledge and use of specific NFW ideas presented so far has only been post-NFW data. It is possible that participants were already familiar with these ideas before attending the NFW. Prior to the Fall 2006 NFW, baseline data was collected about the level of knowledge and use of these ideas. Figure 2 shows that the levels of knowledge increased substantially and the level of use increased somewhat. Note that Cooperative Group Problem Solving was not included in the pre-NFW survey.

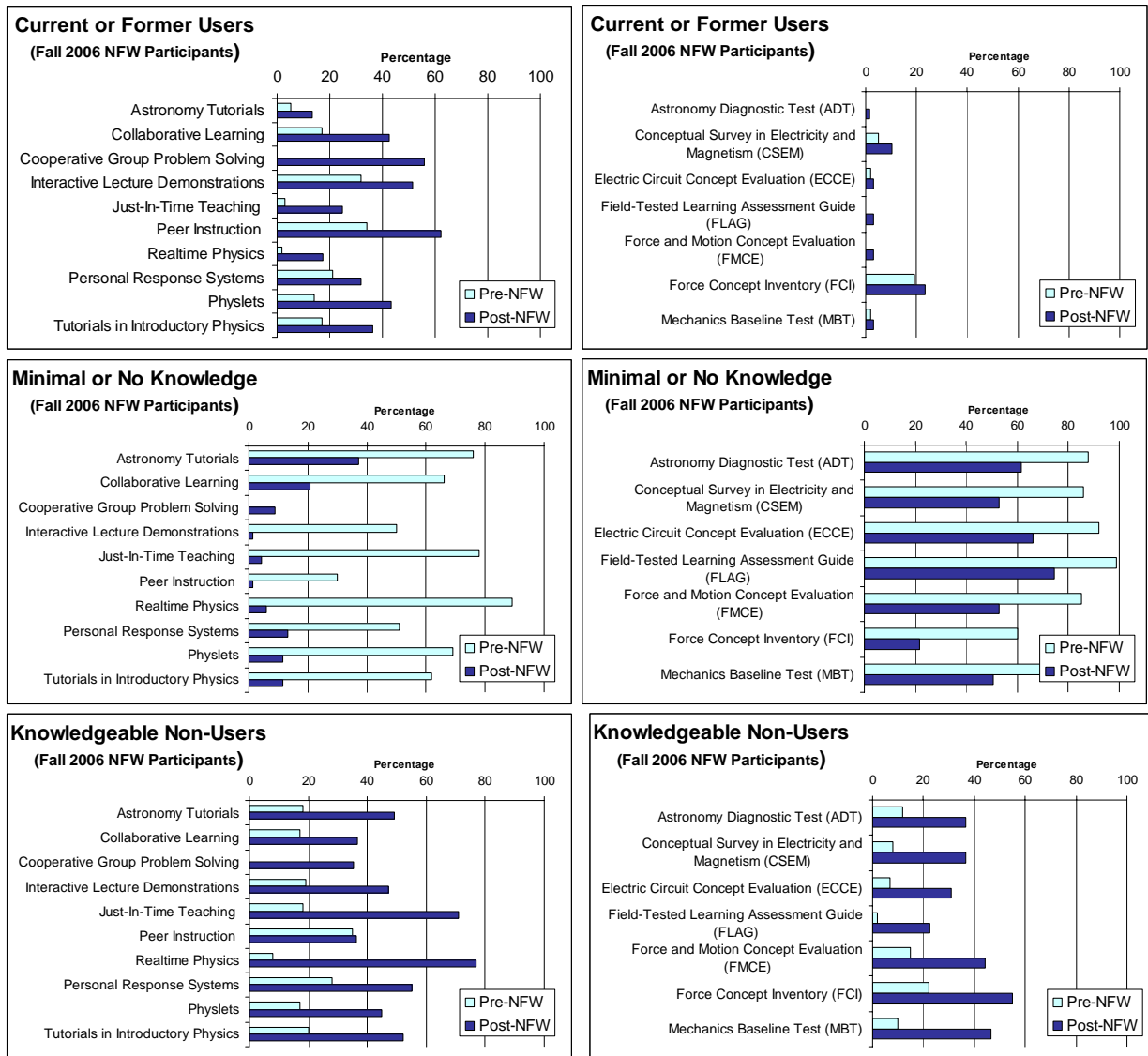


Figure 2: Comparison of self-reported level of knowledge and use pre- and post-NFW for 2006 attendees.

Summary

The New Faculty Workshop has been very successful in helping participants develop knowledge about recent developments in physics pedagogy. Most (81.7%) of participants state that their participation in the NFW considerably or fully introduced them to new or more in-depth knowledge about teaching physics. Almost all (93.7%) of participants indicated that, right after

the workshop, they were interested in incorporating some of the workshop ideas into their teaching. Most participants indicated knowledge about or use of each of the specific instructional strategies presented at the workshop. A comparison of pre-post knowledge and use for Fall 2006 NFW participants indicates large increases in knowledge about specific instructional strategies that can fairly safely be attributed to the NFW.

The New Faculty Workshop has been less successful in helping participants develop knowledge about the assessment of changes in pedagogy. Assessment of changes in pedagogy can be made by instructors using a variety of readily available multiple-choice assessment instruments. Even after the NFW, most participants report little knowledge about or use of these instruments. The one exception is the Force Concept Inventory, of which 86.3% of participants report knowledge, 24.3% report current use, and 24.9% report past use. The lack of familiarity with the other instruments suggests that these instruments were not featured prominently in the NFW. The lack of use suggests that NFW participants may not see the value of using such instruments.

Goal 3: Workshop participants have integrated workshop ideas and materials into their classrooms and it has had a positive impact on their students and their departments.

Data Sources

The same data sources were used as described above for Goal 2.

Results – Integration of New Ideas

A. Self-assessment of overall teaching style

Figure 3 shows participant responses to survey questions 12 (rating of teaching style prior to NFW) and 13 (rating of current teaching style). This shows that there was a large shift to more alternative teaching styles after the NFW. Only 1% of participants rate their post-NFW teaching style as highly traditional.

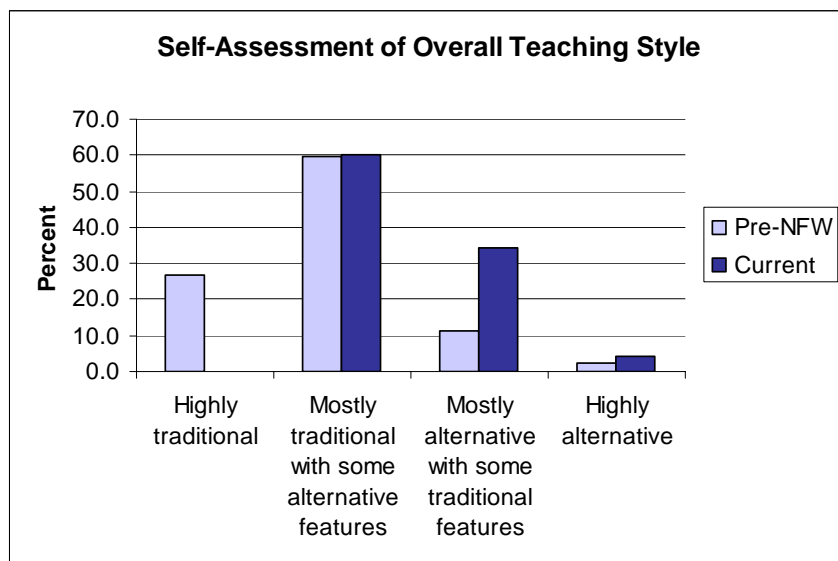


Figure 3: Participant self-assessment of overall teaching style.

In addition, Figure 4 shows that 70.7% of participants rate their teaching style as more alternative than other faculty in their department, and only 4.0% rate their teaching style as more traditional than other faculty in their department.

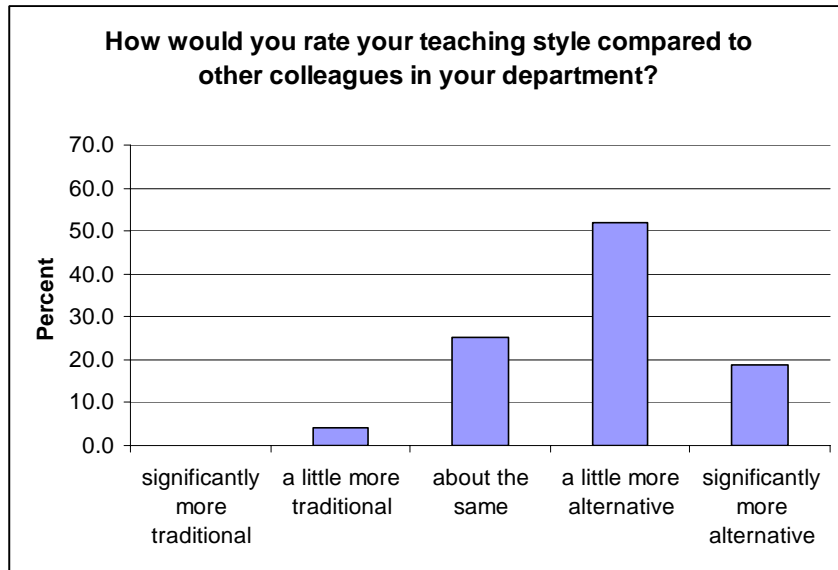


Figure 4: Participant rating of their teaching style compared to other colleagues in their department.

B. Department chair assessment of overall teaching style.

The department chair survey mirrors the self-report data described above. Figure 5 shows that 58.6% of department chairs rate NFW participants as having a more alternative teaching style than other faculty in the department and only 2.9% of department chairs rate NFW participants as having a more traditional teaching style than other faculty in the department.

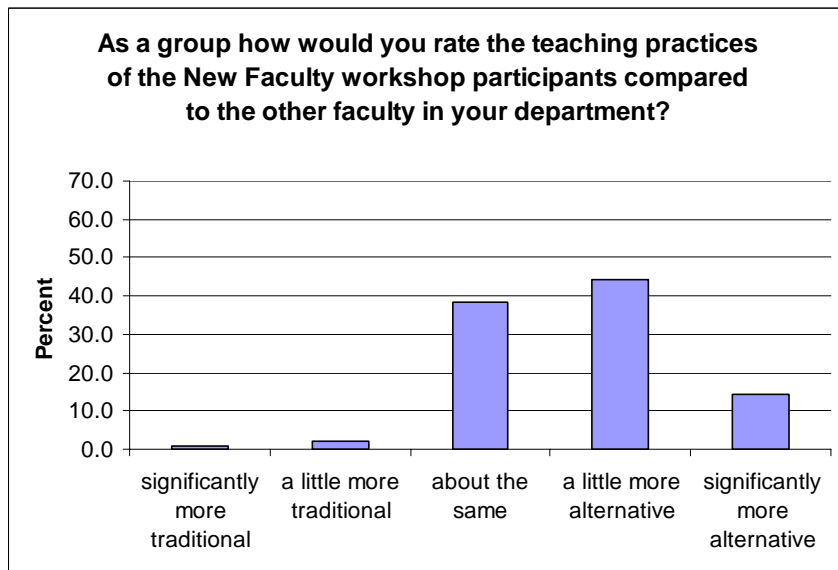


Figure 5: Department chair rating of NFW participant teaching style compared to other colleagues in their department.

C. Self-assessment of changes in overall teaching style.

Figure 6 shows that 32.1% of participants report a considerable or full change in their teaching style since participating in the NFW. An additional 64.4% reported some change in their teaching style. Only 3.5% reported no change in their teaching style. Further, Figure 6 appears to indicate a trend in larger reported changes in teaching the longer it has been since NFW participation. One possible explanation for this trend emerged from the written comments made to survey question #16 – see Table 6 for example comments. According to this explanation, the NFW is a “gateway” experience that starts some participants on a larger process of exploration into alternative teaching methods. If this is the case, one would expect the trend shown in Figure 6 of more changes with teaching over time (as more exploration has taken place).

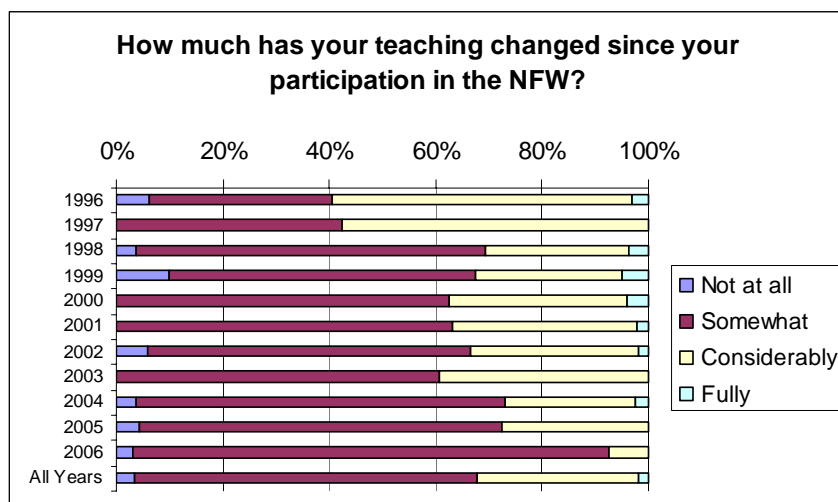


Figure 6: Participant self-assessment of changes in their teaching since the NFW.

Table 6: Selected responses to open-ended question 16 where participants are asked to describe the impact that the NFW had on their teaching.

- Although I only say that some of my teaching was altered by NFW, it provided an important seed, and in that sense has influenced much of what I've done. So the impact was large, though to be fair much of what I've done since involves what I have learned long after I attended NFW.
- Most important aspect of workshop was to wake me up to the fact that teaching matters, not just to my own tenure process, but it matters for our field to do a good job. That resonated with me, and I look back at that workshop as the moment when I really got that message. I've tried to incorporate some methods from it, but mostly I just try harder than I would have otherwise.
- Many factors contributed to my adoption of mostly nontraditional teaching styles, especially the influences of colleagues. The New Faculty Teaching Workshop was the true tipping point - I was primed, and this workshop created a true believer of me. Eric Mazur's talk and materials were key, and the wealth of good resources and supportive experts have been essential - especially Priscilla Laws' excellent workbooks and Ken Krane's leadership and personal encouragement.
- The new faculty workshop introduced me to a lot of ideas about teaching. It's biggest impact was to make me aware of teaching issues. It led me to later participate in many other teaching workshops.

The data presented in Figure 7 is also consistent with this explanation of the NFW as a gateway experience. The figure shows that participants rate the NFW as a smaller contributor to their changes in teaching the more time that has elapsed since the NFW. This is consistent with the gateway theory since recent participants will have had less time to expose themselves to other sources of information about alternative teaching strategies. Overall, 96.4% of participants who reported making a change in their teaching attribute at least some of this change to their participation in the NFW.

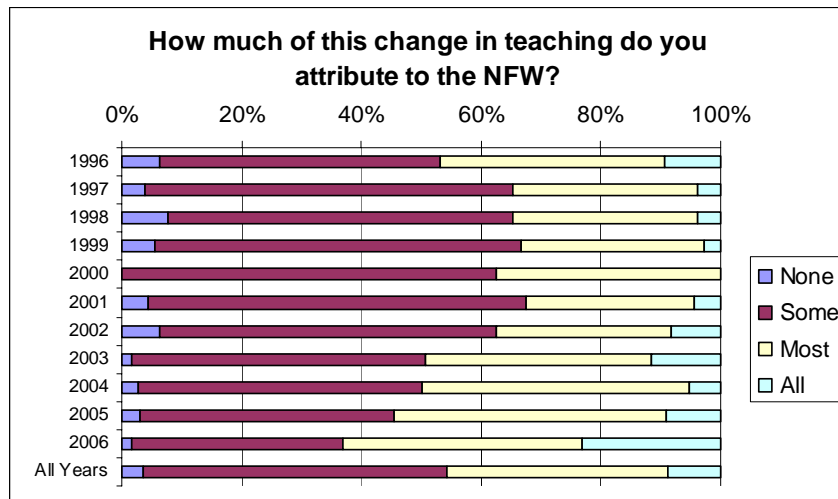


Figure 7: Participant rating of the contribution of the NFW in their instructional changes. (Note: data excludes 3.5% of respondents who reported no change in teaching since the NFW.)

D. Department chair assessment of changes in overall teaching style.

Table 7 shows that most department chairs (72.4%) report that faculty have made changes to their teaching as a result of the workshop.

Table 7: Summary of responses to department chair web survey question #10a.

10. Of the faculty that have attended the New Faculty Workshop are you aware of any changes in their teaching as a result of the Workshop?	
Yes	No
72.4%	27.6

Table 8 shows examples of the types of changes department chairs report.

Table 8: Selected responses to open-ended portion of department chair question #10a.

10a. Have the NFW participants had any influence on faculty in your department who have not attended the NFW? If yes, please explain.

- A number of them have tried to more consistently implement active teaching techniques in their courses after their attendance than before.
 - Both of those who attended have made some changes to their classroom practices. Most of the changes have to do with peer instruction and student feedback methods.
 - Mostly they have increased the interactivity with the students. The ways in which they become more interactive varies greatly, depending on both teaching assignment and personality.
 - Making lectures more interactive, obtaining real-time feedback from students, being attentive to different learning styles.
-

Results – Positive Impact on Students and Department

A. Participant believe the NFW has had a positive impact on their students and department

Table 2 shows that 64.7% of participants say that the NFW has had a considerable or larger positive impact on their students and only 1.3% say that the NFW has not had a positive impact on their students. Similarly, Table 2 shows that 49.5% of participants say that the NFW has had a considerable or larger positive impact on their department and only 4.6% say that the NFW has not had a positive impact on their department.

B. Department chairs believe that the NFW has had a positive impact on participants' students

Table 9 shows that most department chairs (72.6%) who have sent faculty to the NFW indicate that the workshop has led to improved student learning in classes taught by workshop participants.

Table 9: Summary of responses to department chair web survey question #11a.

11a. Do you believe that the students in classes taught by New Faculty Workshop participants are learning more or better as a result of the New Faculty Workshop?	
Yes	No
72.6%	27.4

C. Participants share NFW ideas with other faculty in their institution.

Table 10 shows that most participants (86.8%) have discussed NFW ideas with their colleagues. Based on their written descriptions, these discussions often occur when participants formally present what they have learned at the NFW at a department colloquium or department faculty meeting. For example:

After the New Faculty Workshop, I presented a summary in a physics faculty meeting. As a result, a room was reconfigured with round tables and 2 senior professors attempted changes to their sections of introductory physics. Since then, we have also adopted Tutorials for our General Physics I and II courses. Alternative methods have been investigated and attempted by some faculty members. The majority of faculty members are moderately supportive of new teaching techniques, although some are resistant.

These discussions also often occur as a result of their pre-tenure teaching evaluations. For example:

Obviously, all the faculty that came to evaluate my teaching discussed my use of JiTT with me, but I also discussed with some other faculty. Now are even adopting these ideas themselves - and not just the junior faculty.

Table 10: Summary of participant responses to web survey question #32.

32. Have you discussed some ideas from the New Faculty Workshop with colleagues in your department?	
Yes	No
86.8%	13.2%

Table 11 shows that many NFW participants (39.8%) report that their colleagues have made changes in their teaching as a result of these discussions.

Table 11: Summary of participant responses to web survey question #33.

33. To the best of your knowledge, have any of your colleagues made changes in their teaching as a result of what you learned at the New Faculty Workshop?	
Yes	No
39.8%	60.2%

In written comments, many of these changes involved the use of personal response systems. For example:

With help from an older faculty member who had also investigated the idea, I taught the first course at my university using a personal response system. The technique has spread across campus, and just four years after my first test, our IT people have installed infrastructure into nearly every classroom on campus.

Table 12 shows that many department chairs (51.0%) also believe that NFW attendees have influenced other faculty in the department.

Table 12: Summary of department chair responses to web survey question #13a.

13a. Have the New Faculty Workshop participants had any influence on faculty in your department who have not attended the New Faculty Workshop?	
Yes	No
51.0%	49.0%

Table 13 shows examples of the impact NFW has had on some departments.

Table 13: Selected responses to open-ended portion of department chair question #13a.

13a. Have the NFW participants had any influence on faculty in your department who have not attended the NFW? If yes, please explain.
<ul style="list-style-type: none"> • Our faculty are gradually adopting new teaching techniques and new faculty are leading the transition. • The enthusiasm and exposure to new ideas brought back by the faculty members who attended the workshops has spread throughout the department • They continually give pointers on how to improve others' classroom performances. It makes for great hallway and lunchtime conversations! • Yes, most definitely. Every person in the department has adopted at least one teaching method introduced to our faculty attending the workshop. • This influence may be more significant than the affect on the participants themselves. Two of our new faculty attended this year's workshop and at our January retreat they gave a presentation on the methods they learned at the workshop. Two of our tenured faculty (including myself) are now employing some of these techniques this semester.

D. Participants highly recommend the NFW

Table 14 shows that nearly all of the NFW participants would recommend the NFW to a colleague in their department (91.2%). Thus, participants appear to highly value their NFW experience. This suggests that they believe the workshop has had a positive impact on their teaching and, thus, on their students and department. Table 15 shows selected participant explanations of their decision to recommend the NFW. The most common reasons given for recommending the NFW with reservations was that while some sessions were excellent others were not useful (5 comments); the focus was mainly on the introductory course, so useful primarily for faculty teaching the introductory course (4 comments); and the workshop was focused primarily on teaching and not other aspects of being a new faculty member (3 comments). The most common reason for not recommending the NFW was the perception that the NFW was not appropriate for faculty at research institutions (2 comments).

Table 14: Summary of participant responses to web survey question #8.

8. Would you recommend the New Faculty Workshop to a new colleague in your department?		
Yes	Yes - with reservations	No
91.2%	8.0%	0.8%

Table 15: Selected responses to open-ended portion of question #8 where participants are asked to explain their response.

Yes Selected from 126 comments	Yes - with reservations Selected from 31 comments	No Selected from 3 comments
<ul style="list-style-type: none"> The payoff versus time commitment for this workshop was enormous!! I would insist that any new faculty member in our department attend one of these. I believe these workshops are having a large impact on the quality of college level physics teaching in the US. The Workshop was absolutely the most useful meeting I've ever attended. I use ideas and methods I learned at the workshop every week. Each year, I incorporate more. In my view, this workshop is ESSENTIAL. I have recommended it to all our faculty hires. 	<ul style="list-style-type: none"> I thought many sessions exceeded my expectations, but some were quite slow-moving and went over material that I thought was rather obvious (and in some cases I felt amounted to dumbing down the curriculum). I'd tell them to attend, that they would learn many useful things, but give the earlier caveats. The emphasis of the workshop is on introductory physics courses. So, I would recommend attending only if the faculty is currently teaching (or has taught) such courses. My year, focus was very much on teaching; not on surviving as a well-rounded faculty member, i.e. getting funding, supervising students, publishing papers and classroom teaching. That said, I was familiar with much of the pedagogical material. This might not be true for a colleague who has no familiarity with PER, for instance. 	<ul style="list-style-type: none"> I should have focused on research better The sessions did not, to me, appear to cater to research faculty with teaching responsibilities, but to teaching faculty. The sessions were more demoralizing than anything, I doubt one could implement all the techniques discussed if one have no research responsibilities at all.

E. Department chairs value the NFW

Table 16 shows that most department chairs (82.4%) who have sent any faculty to the NFW now nominate all faculty to the workshop. This suggests that they see positive results from the workshop.

Table 16: Summary of department chair responses to web survey question #7a.

7a. Do you nominate all new faculty in your department to attend the New Faculty Workshop?	
Yes	No
82.4%	17.6%

F. Participants have received teaching awards

Four of the faculty survey participants indicated that they have been recognized for their teaching and that they attributed this recognition, at least in part, to their participation in the NFW. Table 17 shows the details.

Table 17: Selected responses to participant survey question #35.

35. Please add any additional comments that you have about the NFW that have not yet been addressed.
<ul style="list-style-type: none">• I wanted to mention that I received two teaching awards, one departmental (2005) and the other from the college of natural science (2006). I think that some share of the credit for these awards goes to ideas I got from the New Faculty Workshop. You might ask about that in future surveys, since it is another metric, really.• Thanks--this workshop was a great experience and had a big impact on my teaching. As a postscript, this month I received a named professorship at my university that was established to honor outstanding undergraduate teaching. I'm grateful for the role this workshop played in fostering my development as a teacher.• I received the XXX College All-College annual excellence in teaching award. To the best of everyone's memory this award has never been given to a pre-tenure faculty member. Being selected for this award was based on much of the work inspired by the NFW.• Overall I was very pleased with the experience. . . . You may be interested in reading about some of the results here: [Web link to a university newsletter with a 2-page article about the active learning techniques used by the NFW participant. Also included in the article are quantitative data about student performance on FCI and course exams.]

Summary

There is strong evidence that the New Faculty Workshop participants have integrated workshop ideas and materials into their classrooms and that their workshop participation has had a positive impact on their students and their departments. Faculty report a large shift to more alternative teaching styles after the NFW. Most NFW participants (70.7%) rate their teaching style as more alternative than other faculty in their department. Similarly, most department chairs (58.6%) rate

NFW participants as having a more alternative teaching style than other faculty in the department. Almost all NFW participants (96.5%) report at least some change in their teaching style since the NFW and almost all of these (96.4%) report that the NFW had at least some influence on these changes. Almost all participants say that the NFW has had at least some positive impact on their students (98.7%) and on their department (95.4%). Most department chairs (72.6%) who have sent faculty to the NFW indicate that the workshop has led to improved student learning in classes taught by workshop participants. Most participants (86.8%) have discussed NFW ideas with their colleagues and many (39.8%) report that their colleagues have made changes in their teaching as a result of these discussions. Many department chairs (51.0%) also believe that NFW attendees have influenced other faculty in the department. Nearly all NFW participants (91.2%) would recommend the NFW to a colleague in their department. Most department chairs (82.4%) who have sent any faculty to the NFW now nominate all faculty to the workshop. Four of the faculty survey participants indicated that they have been recognized for their teaching and that they attributed this recognition, at least in part, to their participation in the NFW.

Possibilities for improving the New Faculty Workshop

1. Consider changing the workshop title to emphasize teaching

Although nearly all participants were satisfied with the NFW, many participants also expected the NFW to focus on non-teaching aspects of being a new faculty member (such as getting grants, doing research, publishing, etc.). However, the description of the NFW on the AAPT web site clearly describes the workshop as being focused on teaching; “this annual conference helps new faculty understand how students learn physics and astronomy and suggests how this information can impact a new professor's teaching methods” (from <http://www.aapt.org/Events/newfaculty.cfm>, accessed 3/28/07). It may be that the workshop title suggests to some potential participants that the workshop will focus on all aspects of being a new faculty member. This mismatch in expectations could be remedied by a title change.

2. Spread the word

Table 18 shows that, for departments who have net had faculty attend the NFW, the most common reason (offered by 45% of chairs) is that the department chair lacks of knowledge about the workshop.

Table 18: Summary of department chair responses to web survey question #6b (order of items has been rearranged to reflect frequency of responses).

6b. Which of the following are reasons why faculty from your department have not attended the New Faculty Workshop?	
	Yes, this has occurred
I have not nominated faculty to the New Faculty Workshop because I do not know much about the Workshop.	45.0%
I have not nominated faculty to the New Faculty Workshop because there have not been any new faculty	41.2

in the department since I became Chair.	
I have not nominated faculty to the New Faculty Workshop because the requirement that the department pay transportation costs to College Park MD is prohibitive.	29.9
I have nominated faculty for the New Faculty Workshop but they have not been interested in attending.	9.3
I have nominated faculty for the New Faculty Workshop but they have been unable to attend (e.g. scheduling problems).	9.1
I have not nominated faculty to the New Faculty Workshop because I do not believe that the Workshop is a good use of their time.	6.4

In addition, Table 19 shows that some department chairs did not appear to understand how the NFW differs from more local workshops arranged by their institution or other professional development opportunities. More education about the NFW might help to distinguish the NFW from these other options.

Table 19: Selected responses to department chair survey question #7b.

7b. We would appreciate any additional explanation or clarification to help us understand why faculty from your department have not attended the New Faculty Workshop.

- University and department conduct institutional and program specific new faculty workshops.
 - We have also used a new faculty workshop organized by the Pew Midstates Consortium of colleges.
 - XXX University offers multiple training and workshop opportunities to our new faculty. They are all very busy and must make difficult choices about which to attend.
 - We conduct a variety of on campus workshops - we have preferred to send our faculty to meetings/gordon conferences and places where they have a better chance of interacting with more senior people and potential funders (other than NSF). The basic question is what do they get here that they wouldn't get from attending a joint APS/AAPT meeting and reading appropriate materials. The answer seems to be: not much.
-

3. Explore possibility of providing travel funding in some cases

In addition to lacking knowledge about the workshop, many department chairs who have not had faculty from their department attend the NFW (29.9%) report not nominating faculty to the NFW because they see the requirement that the department to pay a participant's travel to College Park, MD as prohibitive. As one department chair put it:

The cost is the real "brick wall." Our total operating budget for the department would be seriously affected by paying for a trip to MD (We are in Southern CA.) and the internal grants available through the university are hard to get and would only cover a part of the true total cost.

Perhaps there could be some funding available for paying travel expenses under some circumstances.

4. Increase workshop emphasis on assessment of teaching changes

Survey data suggests that NFW participants are not particularly knowledgeable about the availability of research-based instruments to assess the success of changes in their instruction nor do they typically use such instruments. Use of such instruments can help participants assess the impact of their instructional changes as well as identify possible implementation difficulties.

5. Include more focus (or, perhaps a separate track) for faculty interested in upper-level courses.

On several open-ended questions, NFW participants observed that most of the NFW was focused on the introductory course. They would have liked to see more emphasis on teaching upper-level physics courses. For example, Table 20 shows that the largest number of participant suggestions for improving the NFW (N=17) involved placing more emphasis on upper-level courses.

Table 20: Selected participant survey responses for question #28.

28. Are there other changes to NFW that you think could have made it easier for you to implement workshop ideas after you returned to your institution?

Need more focus on upper-level courses (selected from 17 comments)

- More attention to upper level courses. We all teach them, and even though they reach many fewer students, they make a strong impression on those fewer students, they define the physics major, and the evaluations matter for tenure. I felt pretty much at sea teaching upper level courses until about last year (my 9th year of teaching!).
- the focus seemed on introductory physics, which I believe is the right choice, since it involves the most students. For my teaching however I felt less prepared for upper level undergraduate courses

More details are needed (selected from 5 comments)

- One of the major weaknesses I felt the workshop had was that too much time was spent trying to convince us that interactive methods are important. I was hungry to learn more PRACTICAL details of how to implement them.
- More time for us to ask questions of those using the methods. Again for me, the only significant barrier was a lack of familiarity with the details of actually building the ideas into the course (how often do I ask questions, how many questions, when during the class do I ask them, how many points should I give, if any.....). At every opportunity I had, I was asking these sorts of detailed questions, even in cases where we were supposed to be addressing other issues.

Should not be presented as lectures (selected from 5 comments)

- As I recall, the workshop was very interesting, but did often model exactly one of the barriers to increased interactive teaching: the interactive parts were left to the end, if there was time, and we often ran out of time and either cut these activities short or cut them out altogether. Modeling how to make the time for the hands on, interactive elements, despite having a lot to say, in the workshop - and discussing this explicitly - would have been helpful. Also, discussion and demonstration of managing group dynamics.
- The sessions were almost exclusively traditional lectures, exactly what everyone was telling us not to do! It would have been very helpful to actual use the new teaching techniques to cover the material.

More follow-up activities needed (selected from 5 comments)

- Have a follow-up session to compare notes on what worked and reinforce each other in our resolve to be change agents.
 - Most importantly: create a follow-up network of: 1) peers in my situation with whom to exchange stories, 2) mentors and masters in the field who I feel comfortable contacting for advice
-

6. Include more details about target instructional strategies

In both open-ended questions (Table 20) and closed-format questions (Table 21) participants indicated that they would have benefited from more details about and modeling of the instructional strategies presented at NFW. It is probably not feasible to include many more details in the already packed 4-day workshop. One possibility would be to have several smaller and more focused follow-up sessions (perhaps about 6 months after the initial workshop), each targeting a particular strategy or issue. Participants interested in that particular strategy could attend to learn more details and discuss any experiences with implementation. Table 22 shows that most participants (66.6%) indicated that this could have made at least some difference in helping them implement workshop ideas. There could even be some sort of support network (e.g, email listserv) where participants and experienced users could discuss problems and issues as they arise.

Table 21: Participant responses to survey question #27. Possible changes are listed in order of participant ranking.

27. What aspects of the New Faculty Workshop do you think could have been changed to make it easier for you to implement workshop ideas after you returned to your institution?	Probably would have made no difference	Could have made some difference	Could have made a considerable difference	not sure	Response Average
Having former participants come and share success stories with details about how they went about implementing changes.	14.6%	51.0%	29.6%	4.8%	2.16
More modeling of the methods described (i.e. some examples of full class sessions).	17.6	46.2	30.0	6.2	2.13
More discussion about how to improve student evaluations of your teaching.	28.1	37.8	27.3	6.8	1.99
Having an advanced topics parallel track for participants with some familiarity with physics education research.	29.0	37.8	19.1	14.1	1.89
Discussion about how to deal with campus/departmental politics	41.2	32.8	16.8	9.2	1.73
More discussion about how to win over students to reformed teaching methods.	38.9	39.9	12.2	9.0	1.71
Discussion about how to get tenure while using reformed teaching methods.	44.1	31.8	16.9	7.2	1.71
Discussion about how to win over colleagues to reformed teaching methods.	53.5	31.5	7.2	7.8	1.5

Table 22: Participant responses to survey question #29. Possible follow-up activities are listed in order of participant ranking.

29. What sort of follow-up activities do you think might have helped you to implement workshop ideas after you returned to your institution?	Probably would have made no difference	Could have made some difference	Could have made a considerable difference	not sure	Response Average
Smaller follow-up sessions (perhaps 1 weekend in length) focused on the details of implementing a particular strategy.	21.8	47.8	18.8	11.7	1.97
Email listserv were workshop participants can share progress on implementing changes.	24.0	46.8	18.5	10.7	1.94
Bring participants back together to discuss progress and see how others have implemented changes.	23.6	50.8	15.3	10.3	1.91

Appendix A: Institutions sending faculty to the New Faculty Workshop

Institutions with 10-15 NFW Participants (N=5)

- Michigan State University
- Syracuse University
- University of California - Davis
- University of Maryland
- Virginia Tech

Institutions with 6-9 NFW Participants (N=20)

- Baylor University
- Brigham Young University
- Brown University
- Colorado School of Mines
- George Washington University
- Kansas State University
- Kent State University
- Mississippi State University
- Oklahoma State University
- U. S. Military Academy
- University of Arkansas
- University of California - Berkeley
- University of Delaware
- University of Houston
- University of Illinois - Urbana
- University of Nebraska - Lincoln
- University of Oklahoma
- University of Tennessee
- Vanderbilt University
- Worcester Polytech Inst

Institutions with 3-5 NFW Participants (N=62)

- Angelo State University
- Arizona State University
- Boston University
- Bridgewater State College
- Cal Poly - Pomona
- Carleton College
- Clemson University
- Creighton University
- Duke University
- Florida State University
- Fort Hays State University
- George Mason University
- Georgetown University
- Gettysburg College
- Grove City College
- Hampton University
- Houston Baptist University
- Howard University
- IUPUI
- James Madison University
- Johns Hopkins University
- Kettering University
- Linfield College
- Loyola Marymount University
- Massachusetts Inst of Technology
- McMurry University
- Oberlin College
- Old Dominion University
- Penn State University
- Rhodes College
- Rose-Hulman Inst of Tech
- Rutgers University
- SUNY - Buffalo
- Texas Tech University
- Towson University
- U. S. Naval Academy
- U.S. Air Force Academy
- University of Alabama - Huntsville
- University of California - Irvine
- University of California - Santa Barbara
- University of Central Florida
- University of Connecticut
- University of Kansas
- University of Maryland - Baltimore County
- University of Massachusetts - Lowell
- University of Michigan
- University of New Hampshire
- University of North Carolina - Chapel Hill
- University of San Francisco
- University of Texas - Arlington
- University of Toledo
- University of Utah

- Miami University of Ohio
- Middle Tennessee State University
- Minnesota State University - Moorhead
- Mount Holyoke College
- New Mexico State University
- University of Wisconsin - La Crosse
- University of Wisconsin - Milwaukee
- Washington State University
- West Virginia University
- Xavier University of Louisiana

Institutions with 2 NFW Participants (N=83)

- Arkansas Tech University
- Auburn University
- Augsburg College
- Augustana College
- Beloit College
- Berry College
- Bethel College
- Bloomsburg University
- Brooklyn College
- Bucknell University
- BYU-Hawaii
- California State University - Fresno
- California State University - Fullerton
- California State University, Long Beach
- California University of Penna
- Carthage College
- City College of New York
- Coastal Carolina University
- Colorado College
- Colorado State University
- Cornell University
- Denison University
- Drury University
- East Stroudsburg University
- Eastern Michigan University
- Fort Lewis College
- Franklin and Marshall College
- Grand Valley State University
- Grinnell College
- Harvey Mudd College
- Idaho State University
- Indiana State University
- Ithaca College
- John Carroll University
- Kalamazoo College
- Lincoln University
- Marquette University
- Middlebury College
- Millersville University
- Montana State University
- Morehead State University
- New Jersey Inst of Technology
- North Carolina State University
- North Georgia College and State University
- Northeastern Illinois University
- Ohio State University
- Oregon State University
- Otterbein College
- Princeton University
- Principia College
- Ramapo College of NJ
- Randolph-Macon University
- Richard Stockton College
- Rowan University
- Southern Illinois University - Edwardsville
- Southern Oregon University
- Southern University (New Orleans)
- Stanford University
- SUNY - Stony Brook
- SUNY-Buffalo
- SUNY-Geneseo
- Texas Christian University
- University of Akron
- University of Alabama - Tuscaloosa
- University of Florida
- University of Idaho
- University of Kentucky
- University of Massachusetts-Amherst
- University of North Carolina - Wilmington
- University of Pennsylvania
- University of Pittsburgh
- University of Puget Sound
- University of South Carolina
- University of Southern California
- University of Texas - Austin
- University of Vermont
- University of Wisconsin - Eau Claire
- University of Wisconsin - River Falls
- University of Wisconsin - Whitewater
- Vassar College
- Wake Forest University
- Washburn University
- Wayne State University

Institutions with 1 NFW Participants (N=174)

- Adelphi University
- Agnes Scott College
- Albertson College
- American University
- American University
- Arkansas State University
- Armstrong Atlantic State University
- Baker University
- Ball State University
- Bethany College
- Birmingham-Southern College
- Bradley University
- Bryn Mawr College
- Cal Poly San Luis Obispo
- California State University - Long Beach
- California State University - Los Angeles
- California State University - Northridge
- California State University - Sacramento
- California State University - San Bernadino
- Carnegie Mellon University
- Catholic University
- Central College
- Central Michigan University
- Central Washington University
- Colgate University
- College Misericordia
- College of Charleston
- College of William & Mary
- Columbia Union College
- Columbia University
- Columbus State University
- Concordia College
- DePauw University
- Dillard University
- Drew University
- Eastern Illinois University
- Elon University
- Erskine College
- Evergreen State College
- Florida Inst. of Tech.
- Georgia Institute of Technology
- Georgia State University
- Georgia SW State University
- Georgia Tech
- Goucher College
- Hillsdale College
- Hiram College
- Hope College
- Illinois Inst of Technology
- Illinois State University
- Rider University
- Salem State College
- Sam Houston State University
- Samford University
- Seton Hall University
- Shaw University
- Siena College
- Simpson University
- Smith College
- Sonoma State University
- Spelman College
- St Mary's College of California
- St Mary's University of Minnesota
- St. Joseph's University
- St. Olaf College
- SUNY - Potsdam
- SUNY Geneseo
- Susquehanna University
- Sweet Briar College
- Tennessee Tech University
- The University of Georgia
- Tougaloo College
- Trinity College
- Troy State University
- Truman State University
- University of Alabama - Birmingham
- University of Alaska - Fairbanks
- University of Arizona
- University of Arkansas at Little Rock
- University of California - Los Angeles
- University of California - Santa Cruz
- University of Chicago
- University of Colorado
- University of Houston Downtown
- University of Illinois - Chicago
- University of Iowa
- University of Louisville
- University of Massachusetts - Boston
- University of Michigan - Dearborn
- University of Minnesota
- University of Minnesota - Duluth
- University of Missouri - Columbia
- University of Missouri - Kansas City
- University of Montana
- University of New Haven
- University of North Carolina - Greensboro
- University of North Dakota
- University of Northern Florida
- University of Northern Iowa
- University of Oregon

- Indiana University
- Iowa State University
- Juniata College
- Kenyon College
- Le Moyne College
- Lebanon Valley College
- LeMoyne College
- Lewis & Clark College
- Longwood University
- Louisiana State University
- Luther College
- Lynchburg College
- Marietta College
- Marlboro College
- McDaniel College
- Millikin University
- Milwaukee School of Engineering
- Moravian College
- Morehouse College
- Murray State University
- North Carolina A&T University
- North Carolina Central University
- North Dakota State College
- North Dakota State University
- Northern Kentucky University
- Notre Dame
- Occidental College
- Ohio State University - Lima
- Ohio University
- Pacific Lutheran University
- Pacific University
- Penn State University Erie, Behrend College
- Pittsburg State University
- Pomona College
- Portland State University
- Purdue University
- Reed College
- University of Pittsburgh - Johnstown
- University of Pittsburgh at Greensburg
- University of Portland
- University of Puerto Rico
- University of Rhode Island
- University of Richmond
- University of San Diego
- University of South Dakota
- University of South Florida
- University of Southern Mississippi
- University of St. Thomas
- University of Texas - Dallas
- University of Texas - San Antonio
- University of Washington
- University of Western Florida
- University of Wisconsin - Madison
- University of Wisconsin - Stevens Point
- Ursinus College
- Wartburg College
- Washington and Jefferson College
- Washington and Lee University
- Wellesley College
- Wells College
- Wesleyan University
- West Chester University
- Western Kentucky University
- Western Michigan University
- Westfield State College
- Westminster College
- Wheaton College
- Wheeling Jesuit University
- Whittier College
- Widener University
- William Jewell College
- Wittenberg University
- Yale University
- Youngstown State University

Appendix B: Summary of Web Survey for New Faculty Workshop Participants[†]

1. What year did you attend the New Faculty Workshop?

	Response Percent	Response Total
1996	6%	32
1997	3.6%	19
1998	4.7%	25
1999	6.2%	33
2000	4.3%	23
2001	8.9%	47
2002	8.9%	47
2003	11.2%	59
2004	11.7%	62
2005	14.4%	76
2006	13.2%	70
I'm Not Sure	6.8%	36
Total Respondents		529
(skipped this question)		4

2. What type of institution do you work in?

	Response Percent	Response Total
Research University	46.4%	243
Comprehensive State University	19.5%	102
Liberal Arts College	28.2%	148
Other (please specify)	5.9%	31
Total Respondents		524
(skipped this question)		9

3. What is the highest physics degree offered by your institution?

	Response Percent	Response Total
No physics or astronomy degree	1.7%	9
Physics and/or astronomy bachelor's degree	38.9%	206
Physics and/or astronomy master's degree	5.7%	30
Physics and/or astronomy PhD	53.8%	285
Total Respondents		530

[†] Note that the number of survey participants shown here (N=533) is slightly larger than the number reported in the main report (N=527). This is because six additional NFW participants responded to the survey after the results were downloaded for analysis.

(skipped this question) 3

4. What is your current tenure status?

	Response Percent	Response Total
Tenured	42.8%	226
On Tenure Track (but not yet tenured)	53.2%	281
Not on Tenure Track	4%	21
Total Respondents		528
(skipped this question)		5

5. Approximately what percentage of your professional time do you spend on the following general activities (total should add to 100%).

	Response Total	Response Average
Teaching (%)	26235	49.69
Research (%)	18090	34.66
Service (%)	7910	15.36
Other, please specify (%)	765	15.61
Total Respondents		529
(skipped this question)		3

If you selected "other", please explain.

Total Respondents 34
(skipped this question) 498

6. How many full time faculty are in your department (including yourself)?

Total Respondents 526
(skipped this question) 6

7. Please rate the overall quality of these aspects of the New Faculty Workshop

	Poor					Excellent	Response Average
Logistics and Organization	0% (0)	1% (5)	6% (34)	43% (224)	50% (264)	4.42	
Sessions	0% (2)	1% (4)	8% (41)	46% (241)	45% (238)	4.35	
Materials Received	0% (1)	1% (6)	16% (82)	43% (223)	40% (212)	4.22	
Followup Activities	2% (11)	12% (57)	41% (201)	32% (157)	12% (59)	3.40	
Total Respondents						527	
(skipped this question)						5	

8. Would you recommend the New Faculty Workshop to a new colleague in your department?

	Response Percent	Response Total
Yes	91.3%	481
Yes - with reservations	8%	42
No	0.8%	4
Total Respondents		527
(skipped this question)		5

Please Explain

Total Respondents	160
(skipped this question)	372

9. Did you contact any of the New Faculty Workshop presenters for additional information after the workshop?

	Response Percent	Response Total
Yes	27%	138
No	73%	374
Total Respondents		512
(skipped this question)		20

	Not at all useful	Somewhat useful	Considerably useful	Fully useful	Response Average
If yes, how useful was this interaction?	4% (6)	27% (40)	43% (64)	26% (39)	2.91
Total Respondents					149
(skipped this question)					383

10. To what extent did your participation in the New Faculty Workshop....

	Not at all	Somewhat	Considerably	Fully	Not Sure	Response Average
Introduce you to new or more in-depth knowledge about teaching physics?	1% (3)	17% (90)	53% (277)	29% (151)	1% (4)	3.11
Help you improve your skills in teaching?	2% (8)	36% (188)	47% (248)	12% (61)	3% (18)	2.72
Give you new or more in-depth knowledge of issues regarding females or minority students?	25% (131)	48% (249)	18% (95)	3% (17)	6% (32)	2.00
Help you make contacts with colleagues from other	10% (51)	51% (266)	27% (142)	11% (56)	2% (9)	2.39

institutions?						
Increase your motivation to work towards improving your teaching?	1% (4)	21% (107)	46% (239)	32% (165)	1% (6)	3.10
Help you achieve tenure (or, if you are not yet tenured, do you expect your participation to help you achieve tenure)?	21% (112)	41% (214)	18% (94)	7% (35)	13% (67)	2.11
Have a positive impact on your students?	1% (7)	27% (143)	48% (250)	17% (89)	7% (35)	2.86
Have a positive impact on your department?	5% (24)	36% (191)	37% (194)	13% (66)	9% (49)	2.64
					Total Respondents	525
					(skipped this question)	7

11. Right after the New Faculty Workshop weekend, were you interested in incorporating some of the workshop ideas into your teaching?

	Response Percent	Response Total
Yes	93.3%	491
No	2.3%	12
I don't recall	4.4%	23
	Total Respondents	526
	(skipped this question)	6

12. Prior to your participation in the New Faculty Workshop, how would you rate your overall teaching style?

	Response Percent	Response Total
Highly traditional	26.7%	140
Mostly traditional with some alternative features	59.5%	312
Mostly alternative with some traditional features	11.5%	60
Highly alternative	2.3%	12
	Total Respondents	524
	(skipped this question)	8

13. How would you currently rate your overall teaching style?

	Response Percent	Response Total
Highly traditional	1.1%	6
Mostly traditional with some alternative features	60.2%	317

Mostly alternative with some traditional features		34.5%	182
Highly alternative		4.2%	22
		Total Respondents	527
		(skipped this question)	5

14. How much has your teaching changed since your participation in the New Faculty Workshop?

		Response Percent	Response Total
Not at all		3.4%	18
Somewhat		64.2%	337
Considerably		30.7%	161
Fully		1.7%	9
		Total Respondents	525
		(skipped this question)	7

15. How much of this change in your teaching do you attribute to your participation in the New Faculty Workshop?

		Response Percent	Response Total
None		3.4%	18
Some		49.5%	260
Most		36%	189
All		8.4%	44
N/A (My teaching has not changed)		2.7%	14
		Total Respondents	525
		(skipped this question)	7

16. Please add any additional comments here.

Total Respondents	136
(skipped this question)	396

17. Please rate the following:

	I currently use it	I have used it in the past	I am familiar with it, but have never used it	I've heard the name, but do not know much else about it	I have never heard of it	Response Average
Astronomy Tutorials	9% (43)	5% (25)	30% (152)	24% (118)	33% (164)	3.67
Collaborative Learning	39% (200)	17% (87)	23% (118)	14% (71)	7% (34)	2.32
Cooperative Group Problem Solving	47% (244)	22% (113)	23% (117)	5% (28)	3% (14)	1.94

Interactive Lecture Demonstrations	46% (237)	24% (124)	24% (123)	4% (20)	3% (13)	1.93
Just-In-Time Teaching	23% (119)	18% (93)	51% (262)	5% (27)	3% (15)	2.47
Peer Instruction	54% (283)	21% (112)	22% (117)	1% (7)	1% (4)	1.73
Realtime Physics	6% (28)	8% (39)	46% (236)	21% (106)	20% (100)	3.41
Personal Response Systems	33% (171)	15% (78)	43% (226)	4% (23)	4% (22)	2.32
Physlets	19% (101)	22% (112)	42% (215)	10% (51)	8% (39)	2.64
Tutorials in Introductory Physics	13% (67)	21% (110)	46% (237)	11% (57)	9% (47)	2.82
					Total Respondents	523
					(skipped this question)	9

18. Please rate the following:

	I currently use it	I have used it in the past	I am familiar with it, but have never used it	I've heard the name, but do not know much else about it	I have never heard of it	Response Average
Astronomy Diagnostic Test (ADT)	3% (16)	4% (21)	26% (132)	17% (88)	50% (253)	4.06
Conceptual Survey in Electricity and Magnetism (CSEM)	8% (43)	6% (33)	30% (157)	22% (113)	33% (170)	3.65
Electric Circuit Concept Evaluation (ECCE)	2% (11)	3% (14)	26% (134)	23% (120)	46% (235)	4.08
Field-Tested Learning Assessment Guide (FLAG)	2% (10)	2% (9)	22% (114)	20% (104)	53% (271)	4.21
Force and Motion Concept Evaluation (FMCE)	5% (24)	10% (49)	33% (171)	19% (96)	33% (171)	3.67
Force Concept Inventory (FCI)	25% (129)	25% (129)	37% (194)	7% (38)	6% (33)	2.46
Mechanics Baseline Test (MBT)	4% (21)	9% (48)	41% (214)	19% (98)	26% (136)	3.54
					Total Respondents	522
					(skipped this question)	10

19. Please add any additional information about your use of specific workshop ideas.

Total Respondents 69
(skipped this question) 463

20. Please identify a course that you have taught frequently since your participation in the New Faculty Workshop. (The next set of questions will refer to this course.)

Total Respondents 505
(skipped this question) 27

21. Please provide some information about your course.

	Course Level					Response Total
	Introductory	Lower Level Undergraduate	Upper Level Undergraduate	Graduate	Other	
Course characteristics	60% (302)	19% (98)	14% (69)	6% (30)	1% (7)	506
	Associated Lab				Response Total	
	Yes	No	Other			
Course characteristics	74% (360)	23% (112)	3% (17)		489	
	Associated Recitation Section				Response Total	
	Yes	No	Other			
Course characteristics	27% (130)	71% (342)	2% (10)		482	
	Number of Students					Response Total
	< 10	11-25	26-50	51-75	> 75	
Course characteristics	8% (41)	27% (136)	26% (130)	12% (63)	27% (134)	504
Total Respondents					507	
(skipped this question)					25	

If you selected "other" for any course characteristic, please explain.

Total Respondents 40
(skipped this question) 492

22. During the most recent time you taught the course, over the semester or quarter, how frequently did/do you use the following teaching strategies during the lecture portion of your course?

	Never	Once or twice per semester	Several times per semester	Weekly	Nearly every class	Multiple times every class	Response Average
Instructor presents theory	1% (7)	2% (12)	8% (41)	25% (124)	46% (231)	17% (87)	4.64
Instructor presents demonstration	7% (34)	9% (43)	23% (116)	31% (155)	23% (114)	8% (41)	3.79
Instructor solves/discusses quantitative problem	2% (12)	5% (23)	14% (68)	31% (155)	34% (173)	14% (71)	4.33
Instructor solves/discusses qualitative problem	2% (12)	2% (10)	12% (61)	28% (139)	37% (184)	19% (96)	4.52
Students solve/discuss quantitative problem	8% (41)	11% (52)	19% (96)	32% (158)	22% (110)	8% (38)	3.72
Students solve/discuss qualitative problem	4% (20)	6% (30)	16% (79)	28% (143)	28% (141)	18% (89)	4.24
Pair or small group discussion	14% (68)	9% (46)	18% (91)	23% (116)	19% (95)	17% (87)	3.77

Instructor questions answered by a single students	10% (51)	5% (25)	11% (53)	21% (105)	32% (160)	22% (108)	4.24
Instructor questions answered simultaneously by entire class	11% (54)	5% (27)	13% (65)	19% (95)	24% (121)	28% (141)	4.24
					Total Respondents	506	
					(skipped this question)	26	






23. Please provide any additional information about your course that you feel is relevant for this survey.

Total Respondents	74
(skipped this question)	458

24. How important were the following factors in preventing you from using more of the ideas from the New Faculty Workshop?

	Posed no barrier	Posed some barrier	Posed considerable barrier	Not sure	Response Average
Resistance of students	45% (230)	39% (198)	9% (47)	7% (34)	1.61
Resistance of colleagues	66% (337)	23% (117)	4% (19)	7% (34)	1.33
Room configuration not appropriate	31% (160)	40% (204)	25% (126)	4% (18)	1.93
Not enough time	11% (54)	39% (198)	49% (248)	2% (9)	2.39
Time spent on teaching improvement is not valued by my institution	63% (318)	23% (117)	9% (46)	5% (25)	1.43
Need to cover a lot of material	13% (66)	47% (238)	38% (195)	2% (10)	2.26
Large class sizes	47% (239)	32% (163)	19% (98)	1% (7)	1.72
Heavy teaching load	37% (189)	35% (175)	26% (133)	2% (10)	1.89
My lack of knowledge about the new idea	55% (275)	37% (184)	3% (13)	6% (30)	1.44
				Total Respondents	511
				(skipped this question)	21



25. Is your department generally supportive of efforts to improve instruction?

	Response Percent	Response Total
Significantly Supportive 	49.4%	255
Somewhat Supportive 	38%	196
Neither Supportive nor Hostile 	10.9%	56
Somewhat Hostile 	1.4%	7
Significantly Hostile 	0.4%	2
	Total Respondents	516
	(skipped this question)	16

If yes, we would appreciate a brief description of these discussions.

Total Respondents	299
(skipped this question)	233





33. To the best of your knowledge, have any of your colleagues made changes in their teaching as a result of what you learned at the New Faculty Workshop?

	Response Percent	Response Total
Yes 	40%	201
No 	60%	301
Total Respondents		502
(skipped this question)		30

If yes, we would appreciate a brief description of these changes.

Total Respondents	172
(skipped this question)	360

34. Please provide the following contact information. This will not be used by anyone except the external evaluator (Dr. Charles Henderson) to verify your participation in the survey.

	Response Percent	Response Total
Last Name 	98.2%	498
First Name 	99%	502
Email Address 	98.6%	500
Phone Number 	93.1%	472
Total Respondents		507
(skipped this question)		25

35. Please add any additional comments that you have about the New Faculty Workshop that have not yet been addressed.

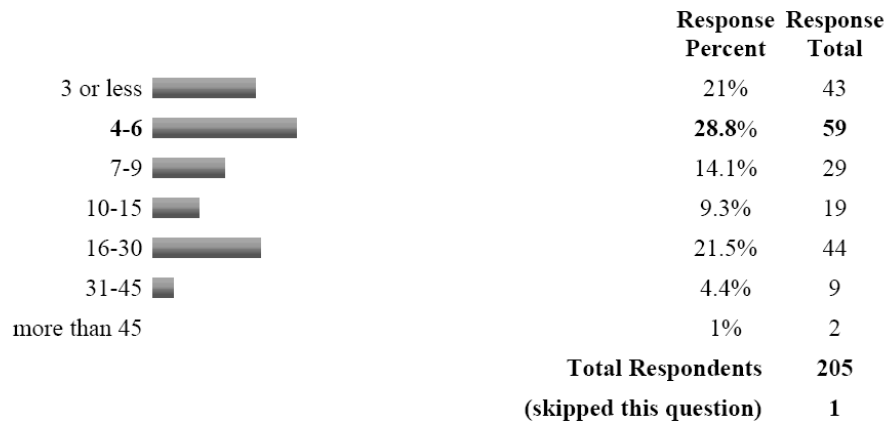
Total Respondents	125
(skipped this question)	407

Appendix C: Summary of Web Survey for Department Chairs

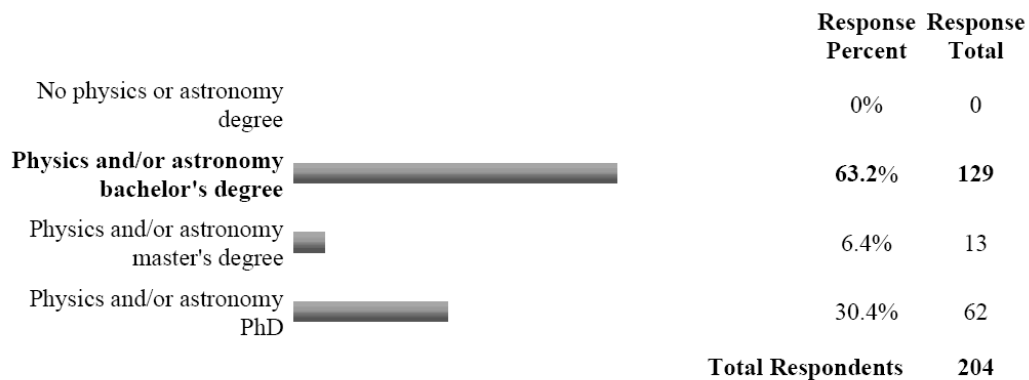
1. How long have you been department chair (number of years)?



2. How many tenured or tenure-track (or equivalent) FTE faculty are in your department?







3. What is the highest physics or astronomy degree offered by your institution?





(skipped this question) 2

4. How would you classify your institution?








	Response Percent	Response Total
Research University 	29.3%	60
Comprehensive State University 	23.4%	48
Liberal Arts College 	42%	86
Other (please specify) 	5.4%	11
Total Respondents		205
(skipped this question)		1

5. Are you aware of any faculty from your department who have attended the New Faculty Workshop?

	Response Percent	Response Total
Yes 	52.9%	108
No 	47.1%	96
Total Respondents		204
(skipped this question)		2



If yes, survey continues to 6a. If no, survey jumps to 6b.

6a. How many faculty from your department are you aware of having attended the New Faculty Workshop?

	Response Percent	Response Total
0	0%	0
1 	42.9%	45
2 	25.7%	27
3 	17.1%	18
4 	4.8%	5
5 	3.8%	4
6 	2.9%	3
7 	1.9%	2
8	0%	0
9	0%	0
10 or more	1%	1
Total Respondents		105
(skipped this question)		101

Completed by subset of department chairs who answered yes to #5.



7a. Do you nominate all new faculty in your department to attend the New Faculty Workshop?

	Response Percent	Response Total
Yes 	82.4%	89
No 	17.6%	19
Total Respondents		108
(skipped this question)		98

We would appreciate a brief explanation of how you decide who to nominate.

Total Respondents	72
(skipped this question)	134





8a. Have you ever nominated a faculty member for the New Faculty Workshop and had that faculty member decide not to attend the Workshop?

	Response Percent	Response Total
Yes 	19.6%	21
No 	80.4%	86
Total Respondents		107
(skipped this question)		99

If yes, please explain.

Total Respondents	20
(skipped this question)	186



9a. As a group, how would you rate the teaching practices of the New Faculty workshop participants compared to the other faculty in your department?

	Response Percent	Response Total
Significantly more traditional	1%	1
Somewhat more traditional 	1.9%	2
About the same 	38.5%	40
Somewhat more alternative 	44.2%	46
Significantly more alternative 	14.4%	15
Total Respondents		104
(skipped this question)		102

Please explain.

Total Respondents 43
(skipped this question) 163



10a. Of the faculty that have attended the New Faculty Workshop, are you aware of any changes in their teaching as a result of the Workshop?

	Response Percent	Response Total
Yes 	72.4%	76
No 	27.6%	29
Total Respondents		105
(skipped this question)		101

If yes, please describe.

Total Respondents 65
(skipped this question) 141



11a. Do you believe that the students in classes taught by New Faculty Workshop participants are learning more or better as a result of the New Faculty Workshop?

	Response Percent	Response Total
Yes 	72.6%	69
No 	27.4%	26
Total Respondents		95
(skipped this question)		111

If yes, please explain.

Total Respondents 72
(skipped this question) 134



12a. Do you believe that faculty participation in the New Faculty Workshop has helped them achieve tenure?

	Response Percent	Response Total
Yes 	49.5%	46
No 	50.5%	47
Total Respondents		93
(skipped this question)		113

Please Explain.

Total Respondents 78
(skipped this question) 128

13a. Have the New Faculty Workshop participants had any influence on faculty in your department who have not attended the New Faculty Workshop?

	Response Percent	Response Total
Yes 	51%	52
No 	49%	50
Total Respondents		102
(skipped this question)		104

If yes, please explain.

Total Respondents 67
(skipped this question) 139

14a. What suggestions do you have for improving the New Faculty Workshop?

Total Respondents 61
(skipped this question) 145

6b. Which of the following are reasons why faculty from your department have not attended the New Faculty Workshop?

Completed by subset of department chairs who answered no to #5.	Yes, this has occurred	No, this has not occurred	Not Sure	Response Average
I have not nominated faculty to the New Faculty Workshop because I do not know much about the Workshop.	45% (36)	49% (39)	6% (5)	1.52
I have not nominated faculty to the New Faculty Workshop because I do not believe that the Workshop is a good use of their time.	6% (5)	78% (61)	15% (12)	1.92
I have not nominated faculty to the New Faculty Workshop because there have not been any new faculty in the department since I became Chair.	41% (35)	58% (49)	1% (1)	1.58

