



**A Progress Report on
Surveys Administered
to New Haven Teachers,
1982–1990**

New Haven, 1992

Yale-New Haven
Teachers Institute

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PREFACE

The Yale-New Haven Teachers Institute may well be the most enduring of the school-college collaborations that have emerged during the past 20 years to enhance the quality of pre-college education. It has also been one of the most successful by any number of different measures.

The YNHTI is a joint activity of Yale University and the New Haven school district. Through the Institute, New Haven teachers and Yale faculty collaborate in the development of curriculum units. In the process, teachers who participate as Fellows of the Institute expand their disciplinary knowledge and, as will be documented in the report that follows, experience enhanced morale, and perceive improvements in their students' learning. Faculty, by their own admission, develop an appreciation of the conditions and circumstances that prevail in secondary—and, more recently, middle and even elementary school—education in New Haven.

The heart of the Institute program is a series of seminars held during the spring and summer on the University campus. Over the course of each seminar, Yale faculty and New Haven teachers explore an area of interest to both. Readings are assigned and discussed with an eye to creating, eventually, a set of curriculum units related to the area. The Yale faculty members who are seminar “leaders” contribute their background in the subject. New Haven teacher Fellows who are seminar participants contribute their expertise in pedagogy and their knowledge of students and the New Haven schools. Together, the participants create curriculum units that find their way into New Haven classrooms, those taught by Fellows and those taught by other teachers who find the units potentially useful.

There are other features of the Institute. A lecture series, assistance in the writing of units, availability of University campus facilities for use by the teachers, and school-year meetings of Fellows within their own schools and at the University. All of these activities serve the objective of collegiality: between Fellows and Yale faculty, between schools and the University, among teachers across schools.

From the start, every facet of the Institute was developed collaboratively. Decisions have typically been achieved through consensus. Emphasis has been given in all Institute activities to crossing disciplines and schools and breaking down traditional barriers and the sources of professional isolation that have marked the teaching profession. Thus, Yale faculty lead seminars that transcend traditional disciplines. University faculty and school personnel work as colleagues in the exploration of subject matter and the creation of curriculum units. Teachers from different schools and disciplines work together in seminars and during the school year in activities related to the Institute and to the dissemination of the curriculum units.

The Institute itself has attempted to overcome the insularity that often marks attempts to effect changes in organizations and institutions. The Institute model was developed and refined through reviews of other efforts at creating collaborations between universities and public schools. Once the model had been adopted, Institute staff established and maintained contact with other school-university collaborations. The Yale-New Haven Institute has always been well represented at conferences on collaborative approaches to school reform. Moreover, the Institute has itself sponsored a major conference on school-university collaboration and has contributed in major ways to conferences

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sponsored by others. Dissemination of the Yale-New Haven model and the exchange of information with other similar programs has long been an objective of the Institute.

Since its inception in 1977, the planners and organizers of the Institute have engaged in an ongoing process of reflection and self-evaluation. The process is fueled by a set of principles that guide the program. These include a belief in the fundamental importance of teaching as the basis for educational effectiveness, an emphasis on collaboration and collegiality among teachers at all levels, and an insistence that programs intended to change education can be effective only if they are long-term and involve teachers as leaders. The principles have been responsible for the particular focus and shape of the program, and have been the filter through which all evaluation has been viewed.

The director of the Institute has been careful, throughout the history of the collaboration, to maintain a perspective that combines ongoing evaluation and fine-tuning of program elements with a firm commitment to the original goals and scale of the project. Pressures to expand, disseminate, or change particular features of the program based on changing fashions in education have been weighed and ultimately rejected out of deference to the major mission of the collaboration. Such changes as have been made have been undertaken as a function of the collective wishes of Fellows expressed in their written evaluations of the Institute, or as responses to perceived needs that fall within the Institute's mission. For example, only after considerable institutional soul-searching and careful consideration of the meaning of the move did the Institute add, in 1990, elementary school teachers to its roster of Fellows, formerly restricted to the middle and high school ranks. The inclusion of a small cadre of elementary school teachers happened only after the Institute staff had reassured themselves that the change would not dilute the focus on subject matter that is a defining characteristic of the collaboration.

Evaluation has been a priority for the Institute from the outset. Consistent with its reflective and self-critical stance, Institute staff have employed a variety of techniques for assessing the operations and outcomes of the Institute and for using and disseminating the results of these efforts. In fact, evaluation activities have served the Institute as one more vehicle for collaboration: with prospective evaluators in the service of focusing the evaluation; with participants in deciding what to evaluate and interpreting results; and with potential audiences in tailoring reports to the information needs of others. Sensitivity to its many constituencies has required that the Institute collect different kinds of information and employ different evaluation strategies. Institute staff have concerned themselves with gathering data both to inform their own reflective process and to share their successes with external audiences. The latter include the collaborating institutions (Yale University and the New Haven Public Schools), funders and prospective funders, and other educators and policy makers engaged in or considering similar collaborative ventures.

The organizers of the Institute have envisioned several purposes for evaluation: documenting and examining the impact of collaboration on teaching and learning; assessing the success of the Institute in achieving its intended outcomes (and, possibly, outcomes that were not intended); understanding the ways in which it (and, by implication, other collaborative programs) might contribute to the enhancement of education in schools; and providing data that might be used to communicate the accomplishments and successes of the programs to diverse audiences.

As a result, the Institute staff have employed a variety of evaluative strategies that transcend the traditional distinction between formative and summative evaluation. From

the very beginning, planning the program has been a collaborative enterprise, involving an almost constant process of considering and evaluating each component of the program. Readings of participants' reactions to program policies and components have been taken regularly, in both formal and informal fashion. (The report that follows is one testimony to the formal side.) Over the course of its existence, particularly in its early years, the Institute invited important observers of public education and educational change to visit and comment in writing on their visits. A catalog has been maintained of the curriculum units created by Institute participants; a summative analysis was performed of the units in 1988. The Institute staff have collected data from and about the New Haven Public Schools, about Fellows and non-Fellows, to assess the extent of the Institute's influence in the schools and its impact on retention of teachers. Comprehensive questionnaires have been completed by Fellows every year since the beginning of the Institute, reporting on a wide range of topics from their reactions to the Institute through their attitudes toward educational reform. The earliest questionnaires evoked essays based on open-ended questions posed by the Institute staff. Over time, themes in the responses to these questions became the basis for a more structured set of questions. Starting in 1982, lengthy questionnaires that included multiple-choice and open-ended questions were administered annually to Fellows. In 1982 and 1987, parallel questionnaires were administered as well to all of the teachers then teaching in New Haven. This report describes many of the responses to these questionnaires.

What is most notable about the findings reported here is their consistency. Although each Institute year brings a new crop of Fellows (albeit many Fellows return for repeat engagements with the Institute), the responses of Fellows to their experiences with the Institute have been similar. With great uniformity, Fellows describe their Institute experiences enthusiastically. They credit the Institute with enhancing their interest in the subjects they teach, increasing their engagement with teaching, and augmenting their senses of autonomy in their classrooms. They are unfailingly positive about the benefits to them of participation in the seminars and about the experience of having prepared their curriculum units. Such consistency of responses is manifest not only among each year's Fellows, but among Fellows across years. This consistency of findings was entirely unexpected. The teachers who have been Fellows of the Institute are a heterogeneous group. They teach different subjects and different grades. Their preparation is varied; they majored in different fields as undergraduates. Moreover, they teach the full range of students who attend the New Haven Public Schools. In short, the Fellows are representative of the larger population of New Haven teachers.

This representativeness would also be a surprise to early observers of the Institute plan who predicted that the Institute would attract teachers mainly from the ranks of those who teach advanced and honors classes and the most academically talented students in the schools. It had also been predicted that the Fellows would represent only the most motivated New Haven teachers.

Instead, Fellows represent all of the subjects and levels included in the middle and high schools of New Haven. That this diverse group of teachers experience the effects of the Institute in similar ways and report consistently positive reactions over time is remarkable indeed.

The dimensions of positive response correspond to some of the major concerns that plague education today. As will become apparent in the body of the report, Fellows reports of the benefits of Institute participation address issues of isolation and alienation, of

feelings of competence, and of motivation among teachers.

Prior to 1982, when Fellows' reactions to the Institute were captured in mini-essays stimulated by sets of open-ended questions, Fellows identified the scholarship of the seminar leaders and the collegial nature of the atmosphere in seminars as some of the most important aspects of the Institute for them. Other features that Fellows identified spontaneously in their early evaluations, and acknowledged with considerable appreciation, were the process of developing and refining their curriculum units, and the balance maintained in their seminars between the study of a topic and the development of curriculum units. The benefits of participation that recurred in early accounts by Fellows inevitably included improved morale and professionalism, and intellectual stimulation. These topics became the focus of multiple-choice questions when the evaluation questionnaires assumed a more constructed format, mainly because they had been the topics most frequently discussed by Fellows in their free-form responses.

The more formal approach to surveying Fellows allowed for the addition of topics and the diversification of the evaluation. Since the Institute was established in the context of major efforts at reforming the teaching profession nationally, a major series of questions in the questionnaires address school reform and related issues. In the years that followed, Fellows (and their colleagues who did not participate as Fellows, when asked) expressed skepticism about some of the more procedural approaches to reform. Examples of these are lengthening the school day and increasing the number of days in the school year. Both groups—Fellows and non-Fellows—were more positively inclined toward raising standards for themselves and their colleagues. They reserved their greatest enthusiasm for enhancing professionalism among teachers and increasing opportunities for teachers to assume leadership roles in schools and in the profession.

These sentiments are particularly interesting in the context of Fellows' reactions to another set of questions, those focusing on the relative benefits of various facets of their Institute experience. Fellows were most appreciative of the avenues that the Institute offered them for professional growth and leadership. Given these responses, Fellows' enthusiasm for the enhancement of professionalism among teachers as a potentially fruitful approach to reform is not surprising. Whether their reactions to the reform proposals are a function of their Institute experiences or they chose to participate in the Institute because of their beliefs in the potential benefits to schools of increased professionalism, the two sets of reactions are consistent. What is somewhat surprising is that non-Fellows agree, suggesting strongly that the Institute approach to reform is one that is attractive to teachers and that fits with their beliefs. It is also significant that Fellows characterized their Institute experiences as more relevant to and valuable for their professional growth than other inservice programs they had experienced.

Other reactions of Fellows to the Institute are related to their reactions to proposals for school reform. Fellows reported that their Institute experiences enhanced collegiality with other teachers in the New Haven schools and with Yale faculty. In their ratings of selected features of the Institute as incentives to participate and as benefits to them, Fellows gave high marks to those features that were consistent with their preferences for reform. For example, the joint opportunities to create a curriculum unit (thereby, according to their ratings, increasing their autonomy in the classroom) and to do interdisciplinary work (thereby enhancing their professionalism and relations with colleagues) were among the highest-rated incentives for and benefits of participation in the Institute. For most Fellows, the ability to interact with Yale faculty was a recurring incentive for participation and a highly valued feature of the Institute program.

The ultimate goal of any program intended to improve education is, of course, the enhancement of student learning. Wisely, the Yale-New Haven Institute has focused its attention on teachers, reasoning that teachers who are engaged will inevitably translate their own engagement into enhanced learning for students. By all available measures, the Institute has succeeded in engaging teachers in important ways. Because its philosophical commitment and primary responsibility has always been to teachers, Institute staff have focused on teachers as the primary targets of evaluation activities. Questionnaires administered to Fellows and non-Fellows have repeatedly probed the major dimensions of the Institute program and most of the foreseeable effects for teachers. In the context of the primacy of teachers in the Institute philosophy, this approach to assessing outcomes is entirely appropriate. Fellows are the immediate audience of Institute programs; non-Fellows are the next in importance.

Given the difficulty of assessing second-order effects directly, the Fellows' questionnaires have asked questions about Fellows' perceptions of their students' reactions to their teaching following their Institute experience, and to the units developed through Institute participation. Parallel questions about students' reactions to Institute units have also been asked of non-Fellows who use such units. In virtually all cases, student responses have been perceived as positive, to the units themselves and to the units when compared with non-Institute materials traditionally used in the same classes. These responses suggest that teachers, even those who did not participate as Fellows perceive some positive influence of the Institute on students. But the definitive study of student reaction has yet to be conducted.

This circumstance is not unique to the Yale-New Haven Teachers Institute. It is typically the case with programs that seek to effect improvement in education by focusing their efforts on teachers, that the effects for students are difficult to assess directly. There are a number of possible reasons for this difficulty. One is that the outcomes for teachers are often diffuse. This means that they may take different forms in different teachers, and result in different behaviors. These behaviors, already different for different teachers, may translate into different classroom experiences for students. While the majority of the translations may be positive, they do not lend themselves to a limited set of potential outcome measures for students.

A related reason is that effects for students may not be felt directly but rather are embedded in intermediate outcomes that are difficult to operationalize and measure. For example, there is good evidence that participation in the Institute enhances the likelihood that good teachers remain in the New Haven Public Schools. Common sense dictates that retaining good teachers cannot but improve conditions for students. However, demonstrating this common sense tenet is not easy. Identifying and documenting student outcomes poses a difficult challenge even for programs, like the Yale-New Haven Teachers Institute, that have demonstrated consistently positive outcomes and important benefits for teachers. It is undoubtedly the case that the task will require a new and different approach. The questionnaire survey method that has prevailed and been so successful in characterizing teacher reactions since the beginning of the Institute will probably not work for students, at least at the outset. A method for documenting student reaction will need to take account of the range and variety of subjects, classes and students represented by Institute teachers, and the concomitant range and variety of ways in which students might be influenced. The challenge suggests a process that starts (once again) with the teachers. The process would probe in some depth and probably in open-ended fashion at first, the range of reactions that teachers observe in their students. When some

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of the more common reactions have been identified and catalogued, appropriate avenues may be developed for assessing the extent to which this set of reactions can be detected in students, by their own reports and the reports of observers. It is surely a worthy goal, as the Institute reflects on its substantial record of achievement in enhancing the professional lives of teachers, to begin to reflect on and develop a systematic approach to assessing the impact of its work on students.

A final note: Like all evaluations everywhere, the questionnaires completed by Fellows concentrate on those facets of the Institute that are common across the majority of Fellows. Analyses of the results of the questionnaires focus on central tendencies and group trends. What is missing from this report (and other reports on group reactions) is an accounting of the many ways in which individuals have been affected personally by the Institute. Participants become inspired, moved, energized, heartened, or aroused in idiosyncratic ways. In turn, they impart or transmit their reactions to others: their colleagues, students, families, friends. It is with such reactions that important changes in education often originate. Yet they evade the often crude investigative tools of evaluation studies, focused as the latter are on measurable phenomena. Even the statements of individual Institute participants that are woven into the pages of this report serve more to support and illustrate the major findings of the study than to illuminate the individual reactions that are probably the Institute's most compelling effects.

In the coming years, as Institute staff contemplate a more secure future, the results of the past twelve years of evaluation offer a strong foundation for assessing the continuing role of the Institute in a changing educational climate. For now, the questionnaire results provide evidence of a productive history.

Gita Z. Wilder
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INTRODUCTION

As the movement nationally for university-school collaboration continues to gain momentum; as this movement becomes more sharply focused on excellence in teaching in public schools; and as numerous collaborative programs, some with the Institute's assistance and following the Institute's model, are being established in other communities, it is vitally important that we deepen our understanding of the ways in which such programs can strengthen teaching and learning in public schools. If, in fact, this movement is to be sustained, in New Haven and elsewhere, collaborative programs must present persuasive evidence of their results. The Institute therefore has a responsibility as one of the most visible collaborative programs, as well as an opportunity as one of the programs of longest duration, to make a significant contribution to educators and policy makers working in this vein.

Since its inception, the Institute has acted on the belief that ongoing evaluation by participants and others is indispensable to the continuing development of the Institute and to ensuring that the program remains responsive to the needs of New Haven teachers and their students. From our perspective in New Haven, the results of the numerous evaluations of the Teachers Institute conducted thus far offer real encouragement that such collaborative programs can assist schools in specific ways.

The present report reflects the analysis of data from teacher surveys which the Institute developed and administered throughout the New Haven Public Schools during a nine-year period. These surveys include questionnaires administered in 1982 and in 1987 to teachers who at any time had been Institute Fellows as well as many who had not participated, and questionnaires completed by teachers participating in the Institute in each year between 1986 and 1990.

This "Progress Report" was prepared for discussion initially at a national conference on "School-College Collaboration: Preparing Teachers and Curricula for Public Schools," which the Institute organized and held at Yale University in December 1991. The conference was attended by representatives of the several main audiences for the results of the Institute's evaluation efforts: that is, teachers and administrators from New Haven and Yale, and from numerous other schools and colleges across the country which are planning or conducting similar programs; as well as other educators, policy makers, and funders interested in the Institute's type of collaboration. Responses from these different constituencies—whose needs for information may differ—will contribute very directly to our ongoing consideration of the value of the preliminary results presented here, and to the plans we will make for the further evaluation of the efficacy of the Institute's approach. This document is therefore correctly titled as a report on our progress, and not on our definitive conclusions.

James R. Vivian

INTRODUCTION TO THE TEACHER SURVEYS

A brief chronology of the teacher surveys will help to establish the findings described in this report in the larger context of evaluation of the Institute. During the first few years of the Institute, its staff developed a series of open-ended questions to elicit information about how Fellows assessed their Institute experiences. Thus, a review of their Institute experience by Fellows has always been an important feature of the overall evaluation strategy of the Institute. Between 1978 and 1981, Fellows' comments were used mainly for internal purposes. Responses to the open-ended questions contributed to ongoing self-analysis and review of the program and to the revision and refinement of program elements. During the same period, seminar leaders, independent evaluators, and the director of the program also reviewed the program in written form. The reactions of all of these individuals appeared to cluster around a set of themes which formed the basis of the first "formal" teacher questionnaires, developed for administration in 1982. The themes were augmented by topics in the questionnaire that emerged from reviews of the literature in areas of education that seemed particularly germane to the Institute.

The purpose of the teacher questionnaires was to provide a comprehensive examination of the influence of the Institute on teaching and learning in New Haven middle and high schools. The questionnaires gathered more systematic data than was possible from the open-ended questions alone (although the annual evaluation by Fellows continued until 1985 in mainly open-ended form). Moreover, the questionnaires were not administered only to Institute Fellows. Separate questionnaires were developed for administration in 1982 to teachers who had participated as Fellows of the Institute and to teachers who may have used curriculum units created by the Institute but had not participated as Fellows. The questionnaires were reviewed by 12 Institute Coordinators and a school administrator, revised to reflect the concerns of the reviewers, and administered by Institute Coordinators in the schools they represented.

The 1982 questionnaires were revised for a second administration in all New Haven schools in 1987, five years after the initial system-wide survey. Three separate but parallel questionnaires were created for the survey: one for Fellows of the Institute in 1986 (and, by extension, Fellows in future years); one for all middle and high school teachers still in the system who had been Fellows at least once during the years between 1978 and 1986; and one for all teachers of academic subjects encompassed by the Institute, who had never been Fellows. The focus of the questionnaires was expanded once again with this survey. In addition to the questions that had been asked in previous surveys, questions were added to reflect issues of national concern and to enable comparisons with sources of national data about teachers. Thus, questions were included from surveys that had been conducted by the Gallup Organization, the National Assessment of Educational Progress, the National Education Association, and Educational Testing Service.

There are, therefore, three strands of evidence represented in these pages. One comes from the annual evaluations by Fellows of their Institute experience. Between 1978 and 1985, these evaluations took the form of responses to open-ended questions. Beginning in 1986, the evaluations were recorded in questionnaires that included both fixed-choice and free-response questions. At that time, many of the free-response questions were re-formulated as fixed-choice items. A second strand involves data from questionnaires administered in 1982 to Institute Fellows and to middle- and high-school teachers in the New Haven system who used Institute-developed curriculum units. The third strand

is from an even broader system-wide survey conducted in 1987 that included former Fellows and non-Fellows.

STRUCTURE OF THE QUESTIONNAIRES

The 1987 questionnaires consisted of questions grouped into sections according to topic. The first section asked about the educational background and teaching experience of the respondents, both Fellows and other teachers: their undergraduate and graduate degrees and certificates, their major fields of study, the kinds of classroom materials they were using, the subjects in which they were certified to teach and which they felt best prepared to teach, and the types of professional growth activities in which they had participated in the years immediately preceding the survey. A second section asked respondents about their attitudes toward the teaching profession and toward their own teaching experience, including their reactions to various recommendations for improving public education, their morale, and the degree of influence they perceived that they had over what they taught.

A section of the questionnaire completed only by former Fellows asked about their experience with the Institute and for their retrospective evaluation of selected features of the program. A series of questions was based on statements that Fellows had made in previous years about the changes that may have resulted from their participation in the Institute. Former Fellows were also asked about the units they had prepared when they were Fellows, and about their subsequent use, revision, and dissemination of the units.

Both Fellows and non-Fellows were asked about their use of and reaction to units prepared by Fellows (teachers) other than themselves, and about their perceptions of student reactions to the units they had taught. Both Fellows and non-Fellows were asked to express their attitudes toward Yale University and its faculty, and to indicate their interest in participating in the Institute in the future.

Finally, all respondents were asked a series of demographic questions intended to characterize their social and economic background. The purpose of these questions was to enable us to compare teachers who have been Fellows with those who have not.

The questionnaires just described were intended for use throughout the New Haven school system. They were developed concurrently with a new questionnaire for Fellows that would be administered each year. Developing the two sets of questionnaires simultaneously enabled us to ask many of the same questions of the several groups of respondents (current Fellows, former Fellows, and teachers who had never been Fellows), but also maintained the tradition established in 1978 of recording the testimony of participants at the conclusion of each year's seminars. This annual census of participants is one of the most valuable forms of evaluation that we have undertaken. The goals of the new set of questionnaires were to transform some of the formerly open-ended questions to multiple-choice questions and to replace some of the earlier questions to which answers had become predictable.

The new questionnaires included, in addition to many of the same questions (described above) asked of former Fellows and non-Fellows, questions about Fellows' teaching, including the grade levels and subjects they had taught, the instructional approaches they employed in their classrooms, and their inclusion of various competencies and skills. Many of these questions were suggested by the literature on teaching (Adler, 1982, 1983; Sizer, 1984; and the College Board, 1983-1986). We also asked Fellows for their reactions to

particular approaches to educational reform derived from a review by Institute staff of major education reports issued between 1982 and 1986.

A major section of the Fellows' questionnaire asked about Fellows' experience in the Institute: reasons for their participation, responses to specific features of the Institute program, and their use of University facilities and resources. Another major section was devoted to fairly specific questions about the curriculum units they developed.

Finally, we retained three open-ended questions to elicit Fellows' comments about their Institute seminar, the potential influence of their participation on their teaching, and their perceptions of the strengths and weaknesses of the program.

REVIEWS AND REVISIONS

The 1982 questionnaires were pre-tested by 12 Institute Coordinators and reviewed by the Supervisor of Staff and Organizational Development for the New Haven Public Schools. The questionnaires were revised to reflect the comments and suggestions of these individuals.

The 1987 questionnaires were developed through a process of reviewing the responses to the 1982 questionnaires which included re-working earlier open-ended questions into multiple-choice form. Existing multiple-choice questions were retained from 1982 to 1987 to allow for comparisons between the results of the two surveys.

The draft questionnaires were reviewed by Institute staff and Coordinators, and a survey developer from Educational Testing Service.

ADMINISTRATION AND RESPONSE RATES

The 1987 system-wide questionnaires, introduced by a cover letter that explained the purposes of the survey and assured the confidentiality of respondents, were administered by Institute Coordinators within the schools that they represented. Only teachers who were potentially eligible to become Fellows completed the system-wide questionnaires. Teachers in fields not covered by the Institute (e.g., physical education) were not surveyed. Completed questionnaires were received by 75 percent of the Fellows (83 individuals) and 57 percent of the non-Fellows (183 teachers).

Because Fellows do not receive their stipends until they have completed their questionnaires, response rates to the Fellows questionnaire were 100 percent in each of the years between 1986 and 1990. The numbers of respondents in each year were 50, 54, 44, 63, and 70 respectively. Some of these respondents appear more than once in the data, since they completed questionnaires for each year of their participation in the Institute.

Between 1978 and 1988 the Institute served middle and high school teachers exclusively. Only in 1989 on a pilot basis--and then in 1990 in a regular way--did the Institute include elementary school teachers as Fellows. Most of the present report, therefore, concerns the experience of middle and high school teachers in the Institute; references to elementary school teacher participants reflect data only from the last two years reported here. Because of their recent inclusion, the proportion of elementary school teachers who have taken part in the Institute is therefore much smaller than the proportion of middle and high school teachers who have participated.

RESULTS

CONSISTENCY OF RESPONSE

There was remarkable consistency among the questionnaire responses, from different groups of individuals (e.g., Fellows and non-Fellows) and from groups whose responses were solicited over as many as seven years. We examined responses from several different groups of individuals. We were initially interested in learning whether and to what extent teachers who become Fellows are different from their colleagues who do not. It soon became clear from their questionnaire responses that Fellows were quite similar to their peers in the New Haven system not only with respect to demographic characteristics and academic preparation but in their responses to other questions as well. We were also interested in comparing Fellows who take part in the Institute science seminars with those who participate in seminars in the humanities. Apart from differences in the subjects they teach and the teaching methods they use, the two groups responded to the questionnaires in highly similar ways.

For most of the Institute's history, elementary school teachers have not been invited to participate in the program. However, following a pilot program that demonstrated the benefits to them of participation in the Institute, elementary school teachers were included for the first time in 1990. We were, therefore, interested in knowing whether and how their responses might differ from those of teachers who work with older students. Again, we found no substantial difference in the reactions of these two groups to the questionnaires. Finally, we sought to contrast the experiences of first-time and returning Fellows and found little in their questionnaire responses to distinguish the two.

For these reasons, the responses are often aggregated in the accounts that follow, across groups of respondents and across years in which the same questionnaires were administered. Occasionally, only the results from the most recent survey are cited. To underscore the consistency of response, ranges are often provided when data from five years of Fellows' surveys are presented.

FELLOWS' WRITTEN RESPONSES

As has been noted, the Institute has, from the beginning, asked participating Fellows each year to describe their experience with the program in their own words. These written responses provided Institute staff with feedback about the program and were used in part to suggest refinements to program elements and procedures. Since 1986, we have administered a program evaluation survey to Fellows made up mainly of multiple-choice questions. However, because Fellows' statements about the program in earlier years provided such rich documentation of their experience in the Institute, we have retained three open-ended questions. These concern Fellows' experiences in their seminars, the effect they expect their curriculum units and their Institute participation will have on their teaching, and their evaluations of the strengths and weaknesses of the program overall. Over the years, distinct themes have emerged in the responses of Fellows to their Institute experiences. In fact, these themes have been used to structure our annual reports, in order to represent the program as its participants see it. The annual reports have also drawn heavily on Fellows' comments to illustrate features of the program and its outcomes. Similarly, we have drawn typical quotations derived from the aggregate responses to

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multiple-choice questions that are reported in the pages that follow. However, it is also valuable to consider the major themes that have emerged from the written responses, and to describe how these have changed over time.

Fellows have always commented on their individual meetings with seminar leaders, two of which are required for each Fellow during the course of the seminar, and on their work together as a whole. They have tended to focus strongly on the teaching, scholarship and accessibility of the seminar leaders in describing what is most important to them about their Institute experience. It has also been useful to make a distinction between general comments on the seminar leader and comments on the environment of collegiality he or she fostered in the classroom, because Fellows have seemed to place a special emphasis on the mutual respect that characterizes this relationship. A section on collegiality among Fellows was also added to reports beginning in 1985 in order to accommodate comments on how teachers from different schools benefitted from their common consideration of the seminar topics and the units that each of them wrote.

Fellows' opinions on the Institute's schedule and the unit writing guidelines have been important in determining how procedures and deadlines can best be integrated with the other professional and personal demands on the participants' lives. A section of comments on these topics—including Fellows' reactions to how the unit writing process shaped their final product and affected their ideas about writing and curriculum design—has accordingly always been a theme in the evaluations Fellows write. Fellows frequently mention that they have tested their units-in-progress in their own classrooms, leading us to assemble this testimony, as we have with their assessments of the talks conducted at the beginning of each Institute session. We have also collected comments concerning the balance the seminars strike between study of their topic and work on Fellows' individual curriculum units. Giving each sufficient time and attention is essential to fulfilling the Institute's goals, and Fellows have recognized this in their responses.

Fellows are asked each year to anticipate the effect their unit will have on their teaching. They have tended to focus their responses in two different areas: the unit's bearing on their teaching style and classroom situation, and the anticipated response of their students. The latter—emphasizing as it does the ultimate and most important result of the Institute's work—has been significant in assessing the success of the program. In 1987, we added a section of the report to present Fellows' more frequent comments on how their unit, and their Institute experience as a whole, has influenced their professional lives.

Early reports grouped comments on professional morale, confidence as teachers, and intellectual stimulation together. It has since proved clarifying to separate these three, assessing the responses in each category. As an indicator of the way responses vary from year to year, however, in 1990 it was difficult to separate teachers' comments about confidence and professional morale: the concepts seemed more closely linked than they had the previous year. In the 1990 report, therefore, we merged the two categories to reflect this.

The Fellows' reaction to coming to Yale has always been strongly positive, and comments reflecting their attitude towards the University have been collected since the first reports. What Fellows learned in their fields—the academic preparation they

received in their Institute seminars—has also long been a concern both of participants and of the Institute staff in analyzing their responses: Fellows frequently describe the academic benefits of participation in their comments, and sometimes make illuminating comparisons to other professional development activities they have undertaken.

It has also been important to identify the responses of particular subgroups of Fellows and the special concerns they have had. Even early reports collect the comments of first-time Fellows and of veterans on the perspectives resulting from their different amounts of participation. In 1990, we also assembled some of the responses of elementary school teachers who were enjoying their first year of full participation in the Institute: their enthusiasm and perception of the benefit they derived were at least as strong as for Fellows in middle and high school.

Certain themes that were prominent in the responses of Fellows early in the Institute's history have receded or disappeared in more recent years. For example, many early Fellows singled out their feelings of "isolation" in their schools and highlighted the ways in which the Institute provided an otherwise unavailable collegial working relationship with other teachers. As the statistical report which follows indicates, many teachers still complain of this isolation; in recent years, however, many fewer Fellows have mentioned this problem in their written evaluations.

Finally, to accommodate the wide range of responses which bear on the Institute in ways more comprehensive than these categories would admit, we have maintained a section in reports on reactions both to the seminar in general and to the Institute as a whole. Some of the most striking and poignant comments Fellows have made over the years have come when they have summed up their reaction to the program, and these sections are perhaps the most powerful testimony to the experience of Fellows at the Teachers Institute. In fact, even in the earliest evaluations, when Fellows were asked to rate the Institute and its component features, they often evaluated the program overall more positively than many of its particular parts.

The ongoing development of these categories in our content analysis of Fellows' written responses has been influenced in different ways. Returning Fellows, completing a survey they have seen before, may offer more detailed and sophisticated comments, which suggest new categories in our annual reports. The differentiation of confidence, professional morale, and intellectual stimulation provides an example of distinctions we have increasingly been able to make. Probably more important, however, Fellows are attentive to proposals which are widely discussed in one year or another as being important measures for improving public schools. So, for example, in recent years teachers have put their Institute experience more in terms of "empowerment" and "professionalism." As another example, in 1990 so many Fellows commented on the multi-cultural perspectives provided in Institute seminars on different subjects that a section was set aside to highlight their views on this topic.

Although it is not possible to present all of the data from all of the subgroups of respondents, the statistical report that follows is organized according to many of the themes just discussed. This report focuses on five broad topics: the characteristics of Fellows (and, for comparison, their colleagues who did not serve as Fellows); respondents' perceptions of the condition of teaching and of themselves as teachers; Fellows' reflections on their Institute experiences; the curriculum units; and Fellows' reports of

student reactions to the curriculum units. A final section of the report discusses the retention of teachers in the New Haven system and the role of the Institute in retaining teachers in the profession and in New Haven. In order to emphasize the continuity of Fellows' written responses to open-ended questions with these data from the surveys, we have often included in the outside margin of each page representative comments on the topic being addressed at that point in the report. This illustrates how the two methods of evaluation reinforce each other, and allows Fellows to flesh out in their own words some of the points that they make collectively by their responses to the multiple-choice questions on the surveys.

RESPONSES TO MULTIPLE-CHOICE QUESTIONS

Most of the results that follow are expressed as ranges based on the questionnaire responses over five years. Simply put, this means that the statistics reported are the highest and lowest percentages of Fellows who gave a particular response during the period between 1986 and 1990. Occasionally, we report only the responses from the 1990 questionnaires, usually because the range over five years was quite narrow.

Some responses are for Fellows only, that is teachers who completed at least one Institute program prior to the 1982 and 1987 system-wide surveys, or teachers who completed an Institute program between 1986 and 1990. Information about non-Fellows, when it is reported, comes from the 1987 system-wide survey or, if the question of interest was included in both the 1982 *and* 1987 system-wide surveys, from both surveys. A non-Fellow is a teacher who, although eligible to participate, had not participated in the Institute at the time of one or both of the system-wide surveys. This means, for 1982 and 1987 at least, teachers in middle and high schools of subjects included in the Institute. (Non-Fellows may have participated in an Institute seminar at a later time.)

I. CHARACTERISTICS OF FELLOWS AND NON-FELLOWS

It is of interest to describe the individuals who choose to participate in the Institute and to compare them with their peers in the New Haven Public School System who do **not** participate. It is often suggested by critics of programs such as the Yale-New Haven Teachers Institute that their successes may be attributed to a process of self-selection by participants. This argument implies that the teachers who take part in programs such as the Institute are a better-prepared and more highly-motivated group than the teachers who opt not to participate. The validity of the argument depends upon the existence of observed differences between the two groups. This section of the report, therefore, describes Institute Fellows and compares them with non-Fellows in 1982 and 1987.

DEMOGRAPHIC CHARACTERISTICS

The New Haven Public School teachers who participate in the Institute are a diverse group, and their diversity reflects that of their colleagues throughout the city. In 1990, there were four Fellows in their twenties and three in their sixties, but most (59 percent) were between the ages of forty and forty-nine. They have, on average, fifteen years of full-time teaching experience, and twelve years of full-time experience in the New Haven Public Schools. Responses of non-Fellows showed them to be remarkably similar: they had taught full-time for an average of fifteen years, twelve and a half of which were spent in the New Haven schools; their average age was forty-two.

The Institute's ongoing study of Fellows who have remained in teaching in New Haven has shown that Fellows are racially and ethnically similar to their colleagues as well, as Table 1—which includes participants through the 1990 session—indicates. In 1990, elementary school teachers participated in the Institute for the first time. Thus, elementary school teachers are included in the 1990 results, but their numbers are quite small.

TABLE 1: RACE AND ETHNICITY OF INSTITUTE FELLOWS COMPARED TO ALL NEW HAVEN PUBLIC SCHOOL TEACHERS

	Percent White non- Hispanic	Percent Black non- Hispanic	Percent Hispanic	Percent Other
Institute Fellows	67.2	27.4	5.4	0.0
All New Haven Public Schools Teachers (1990)	67.8	24.6	6.7	0.9

Source: 1990 Annual Report of the Yale-New Haven Teachers Institute

Because of the importance of attracting, retaining, and developing minority teachers, we cite in particular the fact that the percentage of Black and Hispanic teachers who have completed the Institute closely reflects the proportion of Black and Hispanic teachers in the New Haven Public Schools.

Progress Report on Teacher Surveys

The 1987 system-wide survey revealed minor (and statistically insignificant) differences between Fellows and non-Fellows in the educational background of their families. Thirty percent of all Fellows came from a family in which the father had a college degree, as compared to one quarter (25 percent) of non-Fellows. The fathers in Fellows' families worked at many of the same jobs—as farmers or clerical workers—in the same proportions, though 35 percent of non-Fellows' fathers were skilled or semi-skilled workers and 27 percent were professionals, and the proportion was reversed for Fellows' fathers: 26 percent were skilled or semi-skilled workers, and 35 percent were professionals. With respect to the education of mothers, one quarter (25 percent) of Fellows' mothers held college degrees as opposed to 19 percent of non-Fellows' mothers. These figures are additional evidence of the substantial similarities between the two groups, the more so because the slight differences noted above are the largest observed in any of the demographic questions on the survey.

Sixty-four percent of Fellows and two-thirds (66 percent) of non-Fellows surveyed in 1987 reported that they had children. The children of non-Fellows tended to be younger on average: more than a quarter (26 percent) had children who were five years old or less, which was true of only 13 percent of Fellows. Participation in the Institute demands a substantial commitment of time and energy, and it seems reasonable to attribute this difference to teachers' reluctance to take on extra work while caring for very young children.

ACADEMIC PREPARATION

Responses to survey questions about academic preparation revealed few differences between Fellows and non-Fellows. Table 2 displays all of the undergraduate and graduate degrees and certificates earned by all of the teachers who completed our surveys in all of the years of their distribution.

TABLE 2: ALL DEGREES AND CERTIFICATES EARNED BY FELLOWS AND NON-FELLOWS

	PERCENT OF FELLOWS					PERCENT OF NON-FELLOWS			
	1982*1986	1987	1987*1988	1989	1990	1982*1987*			
Bachelors	99	100	100	96	98	98	99	98	99
Masters	77	72	70	47	57	65	74	67	61
Fifth year	10	4	4	4	0	2	3	4	3
Sixth year	23	24	20	30	27	22	20	20	19
Ph.D.	1	2	2	0	0	3	1	2	1

*System-wide survey

Source: System-wide surveys of Fellows and non-Fellows in 1982 and 1987 and annual surveys of Fellows between 1986 and 1990.

“Probably the greatest strength for me was the academic stimulation. It is easy to get caught up in the day-to-day mechanical necessities of teaching while neglecting your own academic growth. It is important to have an opportunity to balance out the picture.”
-Institute Fellow, 1989

In terms of their formal preparation, then, Fellows and non-Fellows had earned degrees of the same level and type. As Table 2 shows, almost all teachers in every year, Fellows or non-Fellows, held Bachelors Degrees, and similar proportions of non-Fellows and Fellows—67 and 61 percent compared with between 57 and 77 percent over five years—had earned Masters Degrees of some sort. The statistics for fifth and sixth year certificates and Ph.D. degrees are similarly consistent.

The most common undergraduate major among Fellows was education: in 1990, more than a third (36 percent) held degrees in education, and in no year were fewer than 20 percent of Fellows education majors. Between 17 and 28 percent over the last five years had received B.A.'s in English or literature, making it the next most common undergraduate major. History, biology and math have been the next most common undergraduate majors.

With respect to the distribution of subjects studied by Fellows who continued their education beyond the baccalaureate, education was by far the most frequent graduate major: no fewer than 34 percent of Fellows reported it in any year that the survey was conducted; 48 percent of the Fellows in 1987 reported education majors, the highest percentage reported. Other Fellows studied subjects in which they may have majored as undergraduates. In 1990, for example, 9 percent of Fellows had majored in earth science, 6 percent in each of history, general science, and biology, 4 percent in mathematics, and 3 percent in English or literature. As was the case with undergraduate degrees, the distribution of graduate majors reported by Fellows was similar to the distribution reported by all teachers in the New Haven Public Schools (who completed the surveys in 1982 and 1987).

SUBJECTS TAUGHT

The distribution of academic majors reported by Fellows is also consistent with the distribution of subjects taught in the New Haven Public Schools. For example, relatively large numbers of English majors participate in the Institute, reflecting a relatively high number of English teachers in the city at large. Table 3 shows the sizes of six academic departments in middle and high schools in New Haven, in terms of the numbers of teachers they include. The six departments represented reflect the principal subjects addressed by the Institute.

TABLE 3: NUMBER OF TEACHERS IN NEW HAVEN PUBLIC MIDDLE AND HIGH SCHOOLS IN THE PRINCIPAL SUBJECTS THE INSTITUTE ADDRESSES

	<u>1987</u>	<u>1988</u>	<u>1989</u>	<u>1990</u>
English:	83	85	86	81
History:	72	70	74	67
Foreign Language:	44	42	44	46
Arts:	39	39	32	26
Math:	69	70	70	67
Science:	67	66	70	68

Source: Annual reports by Institute Representatives for each school.

“My participation in the seminar has been tremendously helpful in my preparation for the coming school year. I was able to prepare a year-long unit for one of my classes. In doing so, I read extensively on a topic in which I have had a long-standing interest. The time I spent writing and researching and discussing my unit has enabled me to become quite knowledgeable and as a result more confident in presenting my unit.”
-Institute Fellow, 1990

The surveys also revealed discrepancies between the academic majors of teachers in the New Haven Public Schools and the subjects the teachers are assigned to teach. These discrepancies were reported by Fellows and non-Fellows alike. While most teachers reported having received some preparation related to the subjects they were teaching at the time of the survey, many were teaching in areas in which their academic preparation was lacking. Figures 1A and 1B show the relationship between their academic majors and teaching assignments as reported by teachers in the humanities and sciences. The figures show that twenty-one percent of humanities teachers and almost a third of teachers in the sciences did not major as undergraduate or graduate students in any of the subjects they were teaching at the time they completed our questionnaire. Those teachers who become Fellows of the Institute differ in this respect not at all from their colleagues who have not yet participated.

“I enjoyed the reading that we did. I participate in the Institute because I do not have a degree in English and need to broaden my background. I have certainly done this through our seminar readings and the reading I did for my paper.”

-Institute Fellow, 1988

Figure 1A: Undergraduate and graduate preparation of Fellows and Non-Fellows in the **humanities** in the subjects they teach

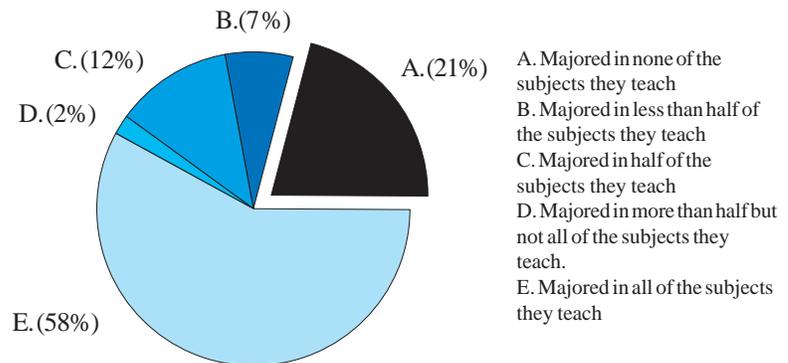
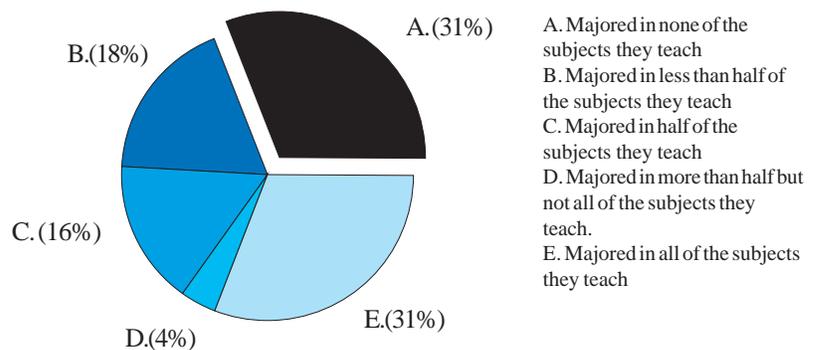


Figure 1B: Undergraduate and graduate preparation of Fellows and Non-Fellows in the **sciences** in the subjects they teach



“Even though I had a good background in history and in the social sciences, I found that there was so much historical information that I had forgotten and that what I remembered was, in many ways, superficial.

Rethinking, retrieving, re-interpretation as well as acquiring new knowledge was so healthy.”

-Institute Fellow, 1989

Although the responses of Fellows and non-Fellows reveal that the two groups experienced similar discrepancies between their academic preparation and teaching assignments, they also underscore an important contribution of the Institute. Through their participation in subject-matter seminars and the creation of curriculum units related to their teaching assignments, Institute Fellows are able to strengthen their academic background in areas that were not included or emphasized in their undergraduate or graduate preparation.

II. FELLOWS' AND NON-FELLOWS' PERCEPTIONS OF THE TEACHING PROFESSION

The surveys included a number of questions that asked for respondents' perceptions of selected aspects of the teaching profession and their own relation to it. Fellows and non-Fellows were asked to reflect on the recommendations for reform of the teaching profession that surfaced during the early 1980s, and to respond to questions about their own professionalism and professional experiences. This section describes the reactions to such questions. Although a later section will focus on Fellows' responses to particular features of their Institute experience, this section includes responses to questions about the Institute that are directly related to proposals for educational reform and to issues of professionalism.

OPINIONS ON ISSUES OF SCHOOL REFORM

The questions on school reform were derived from a review of major studies and reports on education issued between 1982 and 1986. These questions were included in the Fellows' annual questionnaires starting in 1986 and in the system-wide survey conducted in 1987. Responses of Fellows to the questions were quite uniform. Their responses are therefore represented here by the results from the 1990 survey although, for some questions, tables showing the results from all six years are provided to demonstrate and underscore the consistency of response.

Several of the proposals about which the surveys ask concern the lives of students directly. Fellows were generally skeptical about increasing the amount of time that students spend in the classroom. Only one quarter (25 percent) in 1990 thought that a longer school day would improve education, and 26 percent had the same expectation for a longer school year. But an almost equal number—20 and 21 percent respectively—thought that these measures would make matters worse, and non-Fellows were even less optimistic: no more than 13 percent thought that either would improve education, and 42 and 34 percent respectively thought they would have a negative impact. Both groups were more optimistic about setting higher standards for students. Three quarters (76 percent) of Fellows thought that higher requirements for high school graduation would improve education, and half (52 percent) thought that higher college admissions standards would do the same. Non-Fellows' responses followed the same pattern, and no more than 9 percent in either group thought that either measure would make matters worse.

Fellows favored holding themselves and their colleagues to higher standards as well. Over two thirds (69 percent) thought that higher initial certification standards would improve education, as did 53 percent of non-Fellows. Enthusiasm for higher standards within the teaching profession was greater still: 85 percent of Fellows and 75 percent of non-Fellows endorsed this measure, while no Fellows—and only 2 percent of non-Fellows—predicted that it would have a negative impact. Fifty-eight percent of Fellows thought that the creation of a National Board for Professional Teaching Standards to establish high standards and certify teachers would improve education, as did 57 percent of non-Fellows; 77 and 67 percent respectively thought the same of the proposal to free teachers to decide how best to meet state and local goals for children while holding them accountable for student progress. Fellows and non-Fellows alike were less enthusiastic about relating incentives for teachers to school-wide student performance: 37 percent in

both groups thought this would improve education, but of Fellows, 21 percent thought it would make matters worse and another 21 percent said they did not know. Non-Fellows expressed their reservations or uncertainty in almost identical proportions.

TEACHER PROFESSIONALISM

Proposals to enhance professionalism in schools were among the most widely endorsed by Fellows, who demonstrated considerable optimism about the prospect of restructuring schools to provide a more professional environment for teachers, as well as making teachers’ salaries competitive with those of other professions. Figure 2 shows their responses in detail.

“I liked being treated as if I mattered—the comfortable chairs, the coffee—and the chance to talk to other teachers. Teachers will act like professionals when treated like professionals.”
 -Institute Fellow, 1989

Figure 2A: Percentage of Fellows who think that making teachers' salaries and career opportunities competitive with those of other professions will improve education

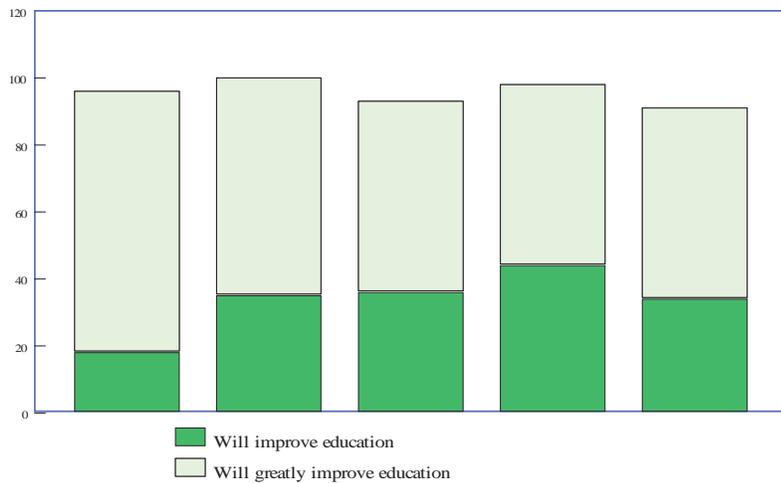
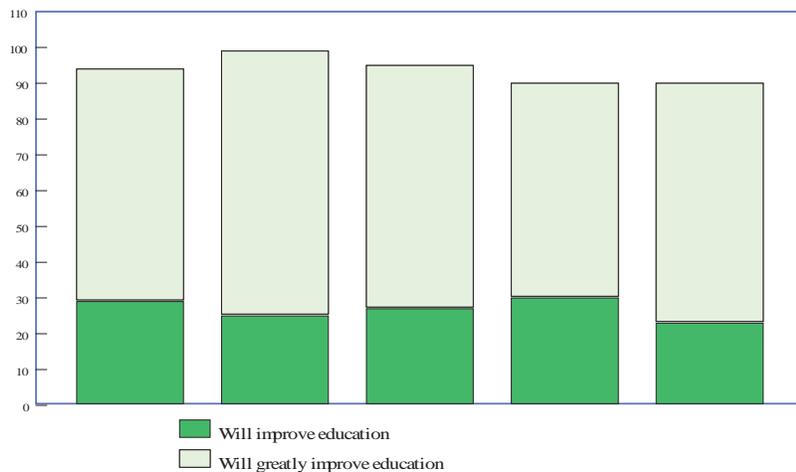


Figure 2A: Percentage of Fellows who think that restructuring schools to provide a professional environment for teachers would improve education



Seventy percent of Fellows and 53 percent of non-Fellows indicated that restructuring the teaching force by introducing a new category of “lead teachers” with the proven ability to provide active leadership in the redesign of schools would improve education. Fewer than half of each group, however, thought that significantly higher pay for teachers in positions of greater responsibility would improve education.

As has already been noted, most Fellows thought that higher initial certification requirements for teachers would improve education. Relatively few thought that such requirements would “greatly improve” education and Fellows were more uniformly positive about higher standards within the teaching profession.

As also mentioned above, the creation of a National Board for Professional Teaching Standards to establish high standards and to certify teachers drew support from more than half of Fellows and non-Fellows, in each year, though no more than 29 percent in any year saw great improvement resulting from such a move. In no year, however, did fewer than 91 percent of teachers say that making teachers’ salaries and career opportunities competitive with those in other professions would improve education, and between 54 and 80 percent envisioned a great improvement in result. When asked to express their opinion on restructuring schools to provide a more professional environment for teachers, Fellows’ support was nearly unanimous, running from a low (in 1989 and 1990) of 90 percent to a high (in 1987) of 98 percent. As many as 74 percent and no fewer than 60 percent in any year thought that such an environment would greatly improve education. Eighty-eight percent of non-Fellows saw the potential for improvement in this measure; 45 percent said it would greatly improve education.

ACADEMIC PREPARATION

Fellows and non-Fellows alike demonstrated their expectations for the benefits of greater academic preparation in their responses to survey questions on issues of school reform. Table 4 illustrates Fellows’ responses. Well over half of all Fellows—no fewer than 61 percent in any given year, and no more than 78 percent—agreed that the requirement of a bachelor’s degree in the arts and sciences as a prerequisite for the professional study of teaching would improve public education. Fellows showed even greater enthusiasm for the benefits of developing a new professional curriculum in graduate schools of education leading to a masters degree in teaching, with 84 percent supporting the idea in 1988, and no fewer than three quarters (75 percent) endorsing it in any other year. In the most positive response on the issue of academic preparation, however, Fellows especially thought that greater emphasis on the preparation of teachers in the academic subjects they teach would improve education. No fewer than 91 percent in any given year agreed with this, and as many as 53 percent (in 1990) said that such an emphasis would “greatly improve” education. Eighty-five percent of non-Fellows also saw in this measure the potential for improvement in schools. Neither Fellows nor non-Fellows, however, tended to favor the elimination of education as an undergraduate major: fewer than half of all Fellows supported the proposal (no more than 49 percent and no fewer than 29 percent in any given year), and as many as 39 percent (in 1988) said that it would make matters worse. Non-Fellows were even more skeptical, with only 27 percent seeing promise in such a policy.

"This year's seminar had a great impact upon me by affording me an opportunity to greatly increase my knowledge of the subject of poetry—a subject I teach each year I'm in the classroom."

-Institute Fellow, 1985

TABLE 4: FELLOWS' REACTIONS TO PROPOSALS FOR IMPROVING PUBLIC EDUCATION THROUGH ENHANCEMENT OF ACADEMIC PREPARATION FOR TEACHERS

	Percent who think the proposal...				
	will greatly improve education	will improve education	won't change things	will make matters worse	Don't know
Requirement of a Bachelor's degree in the arts and sciences for the professional study of teaching	34	27	26	3	10
Development of a new professional curriculum in graduate schools leading to a masters degree in teaching	27	50	14	3	6
Greater emphasis on the preparation of teachers in the academic subjects they teach	53	39	7	0	1

Source: Fellows' Questionnaire, 1990

Fellows have strong opinions about the impact of the Teachers Institute on their preparedness to teach. Ninety-seven percent or more of all Fellows in any given year agreed that the seminar had improved their knowledge of its subject matter; in four of those years, agreement was universal, and between 89 and 96 percent—including 100 percent of new Fellows in 1990—said their understanding had improved “a lot.” Similarly, no fewer than 94 percent responded that they had gained knowledge of their subject and confidence in their ability to teach it; as many as 51 percent (in 1989) “strongly agreed” with this statement. Forty-eight percent of all former Fellows who completed the 1987 system-wide survey agreed that their experience with the Institute had been more relevant to their teaching than their experience in teacher preparation classes, and over half (56 percent) found the experience more relevant than other professional development programs; no more than 15 percent disagreed with either statement. In the same year, 72 percent responded that they were better prepared as a resource for their students as a result of their Institute participation, and 69 percent agreed that they had come away with new techniques for teaching their students.

PROFESSIONAL GROWTH

The 1987 system-wide survey asked Fellows and non-Fellows to list the professional growth activities they had participated in over the last three years. Table 5 shows what they reported.

"I gained a tremendous amount of new understanding about crystals and semiconductors—something I firmly believe I would not have done without good guidance and encouragement."
-Institute Fellow, 1989

TABLE 5: PARTICIPATION IN PROFESSIONAL GROWTH ACTIVITIES REPORTED BY FELLOWS AND NON-FELLOWS BETWEEN 1984 AND 1987

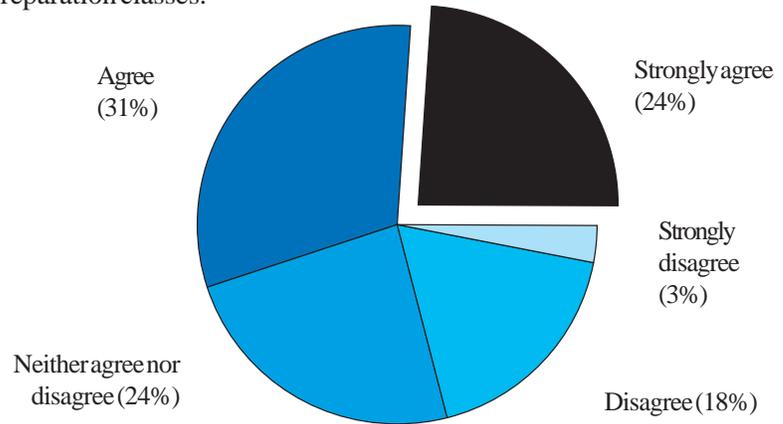
	Percent of Fellows	Percent of Non-Fellows
System-sponsored summer workshops	51	33
Work on curriculum committee	53	37
Committee work other than on curriculum	40	33
College courses not in education during the school year	29	18
Professional growth activities sponsored by professional associations	45	27
College courses in education during the school year	26	26
Sabbatical leave: travel	23	17
College courses in education during the summer	18	17
College courses not in education during the summer	17	12
Sabbatical leave: other	8	4
Full-time college	7	3

Institute Fellows reported greater participation than their peers in the New Haven Public Schools in certain categories of professional growth activities: summer workshops, curriculum and other committees, some types of college courses, and professional growth activities sponsored by professional associations. Given that one of the few observed differences between Fellows and non-Fellows was the age of their children (Fellows' children were older, on average), it would appear that non-Fellows may have less time than Fellows for professional growth of all kinds, owing to greater family responsibilities.

The same survey asked Fellows to compare their participation in the Teachers Institute with their experience with other professional growth opportunities. Figure 3 illustrates their responses. As these charts show, over half (55 percent) agreed that their experience at the Institute had been more important to their professional growth than their experience in teacher preparation classes, while only 21 percent disagreed with this statement. The same percentage (55 percent) rated their Institute participation as more important to their professional growth than other professional development programs elsewhere; on this question, only 13 percent thought it less important.

“Once again, I’ve completed the Institute with a sense of personal growth and satisfaction. This experience made me more aware of my professional commitment to teaching.”
-Institute Fellow, 1984

Figure 3A: Fellows' responses to the statement, "My experience as an Institute Fellow was more important to my professional growth than my experience in teacher preparation classes."



"The Institute was stimulating and challenging. Its strength lies in the opportunity for teachers to become creative and purposeful academically."
 -Institute Fellow, 1984

Figure 3B: Fellows' responses to the statement, "My experience as an Institute Fellow was more important to my professional growth than my experiences in other professional development programs."

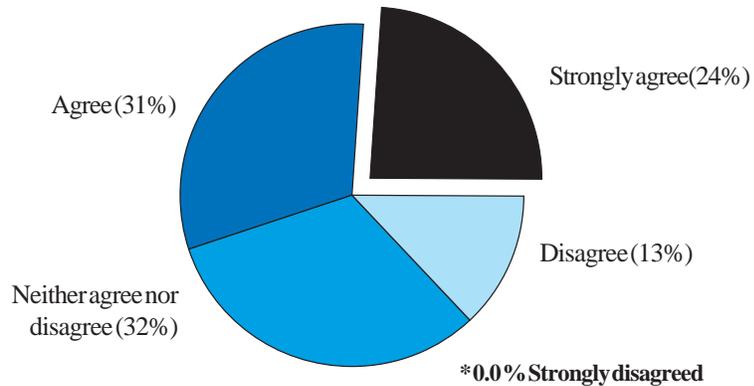


Table 6 shows that proposals for enhancing teacher leadership in schools were also viewed with great optimism.

TABLE 6: FELLOWS AND NON-FELLOWS WHO THINK GREATER TEACHER LEADERSHIP WILL IMPROVE PUBLIC EDUCATION

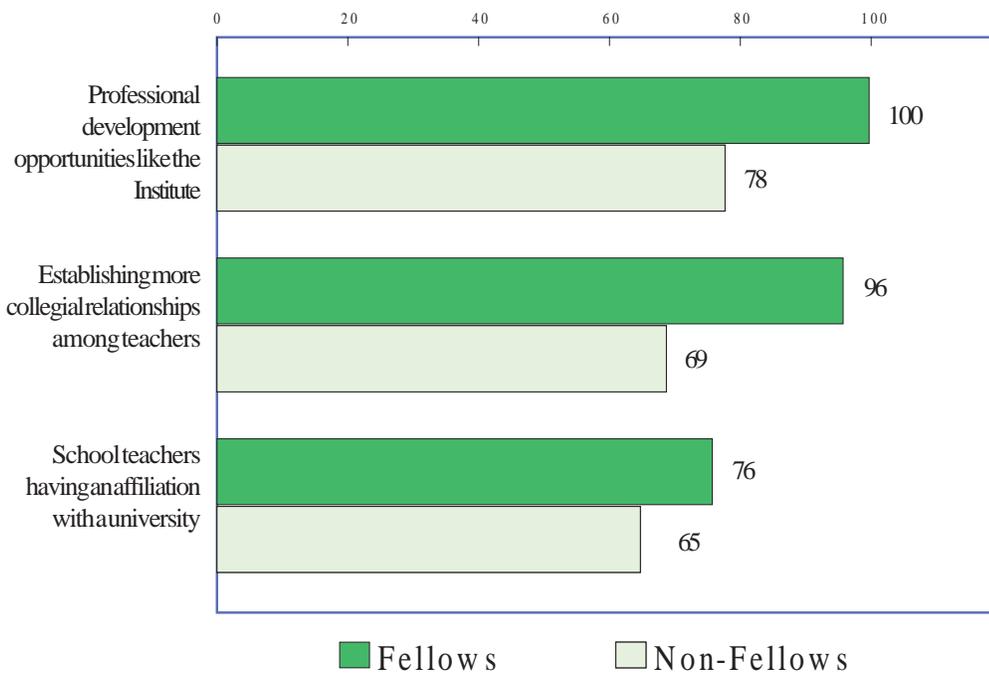
	Percent of Fellows						Percent of Non-Fellows
	1986	1987	1987*	1988	1989	1990	1987*
Teacher leadership in managing schools	84	87	90	100	86	86	75
Greater teacher control over curriculum	80	80	91	93	84	86	79

* System-wide survey

These figures reflect high expectations for both proposals, though at the same time, well over half (62 percent of all Fellows and 68 percent of non-Fellows) saw promise in the idea of a more uniform city-wide curriculum. A very high percentage of both Fellows and non-Fellows—92 and 91 percent, respectively—also saw promise in more effective school principals.

For the purposes of the current report, it is worth noting that many of the proposals to which Fellows and non-Fellows responded most favorably are reflected in the Institute’s program. Greater teacher control over curriculum and greater emphasis on the preparation of teachers in the academic subjects they teach (discussed in a section below) are two important examples. We also asked teachers directly what their expectations were for school teachers having an affiliation with a university, for greater collegiality in schools, and for the establishment of more professional development opportunities like the Teachers Institute. Figure 4 shows their responses.

Figure 4: Percentage of Fellows and Non-Fellows who think that proposals in the Institute's vein will improve education



Source: Fellows’ Questionnaire, 1990; and non-Fellows’ Questionnaire, 1987

Fellows and non-Fellows corroborated this response when asked what effect they thought the Teachers Institute will have on public education in New Haven: 93 percent of Fellows and 71 percent of non-Fellows thought it will improve education, with 33 and 4 percent respectively foreseeing a great improvement. One percent of all non-Fellows and no Fellows thought that the Teachers Institute will make matters worse. The greater strength of Fellows’ responses, compared with that of non-Fellows, suggests that their experience at the Institute has shaped their expectations for these measures. Because both groups’ opinions are so similar on other questions about school reform and throughout the survey, it seems reasonable to attribute Fellows’ more optimistic responses to proposals associated with the Institute’s approach to strengthening teaching and learning in schools to their positive experience as participants.

RESPONDENTS' OWN EFFECTIVENESS AS TEACHERS

Fellows and non-Fellows rated themselves highly on their effectiveness as teachers: on a scale of one (low) to five (high), 82 percent of Fellows in 1982 and 75 percent in 1987 gave themselves a four or five, and 78 and 71 percent respectively of non-Fellows did the same. Eighty-five and 90 percent of Fellows gave themselves a four or a five when asked about their intellectual interest in the subjects they teach, along with 80 and 86 percent of non-Fellows. This did not diminish their appreciation of these qualities in the Institute: when Fellows were asked if participating in the seminar had helped them grow professionally and intellectually, the majority said yes. Fellows in 1987 stated unanimously that it had helped them grow in these respects, and in no other year did fewer than 94 percent make the same claim. In each year between 1986 and 1990 more than half of the Fellows (between 54 and 57 percent) agreed “strongly” that the Institute had helped them grow professionally and intellectually.

TEACHER LEADERSHIP

Related to the question of teacher professionalism is that of teacher leadership. Teachers’ control over their own classrooms and curriculum, and the degree of leadership they are able to exercise in their schools, make a substantial difference in their sense of themselves as professionals. Again, the questions on issues of school reform in the Fellows and 1987 system-wide surveys are useful in illuminating the context of Fellows’ experience at the Institute. Asked if they thought freeing teachers to decide how best to meet state and local goals for children while holding them accountable for student progress would improve education, as many as 84 percent and no fewer than 71 percent of Fellows in any given year agreed; 67 percent of non-Fellows felt the same. No fewer than two-thirds (65 percent) and as many as 81 percent of Fellows also saw promise in the idea of restructuring the teaching force by introducing a new category of “lead teachers” with the proven ability to provide active leadership in the redesign of the schools. As many as 42 percent (in 1988) agreed strongly with this proposal. Of non-Fellows, 53 percent agreed, including 18 percent who agreed strongly.

No fewer than 84 percent and as many as 100 percent of all Fellows in a given year thought that teacher leadership in managing schools would improve education, with between 41 and 54 percent expecting great improvement. Three-quarters (75 percent) of non-Fellows agreed, including almost a third (32 percent) who agreed strongly. Greater teacher control over curriculum was also viewed with great optimism: between 80 and 93 percent of Fellows over five years thought that it would improve education, and as many as 43 percent agreed strongly with the proposal. Seventy-nine percent of non-Fellows agreed, 27 percent of them strongly.

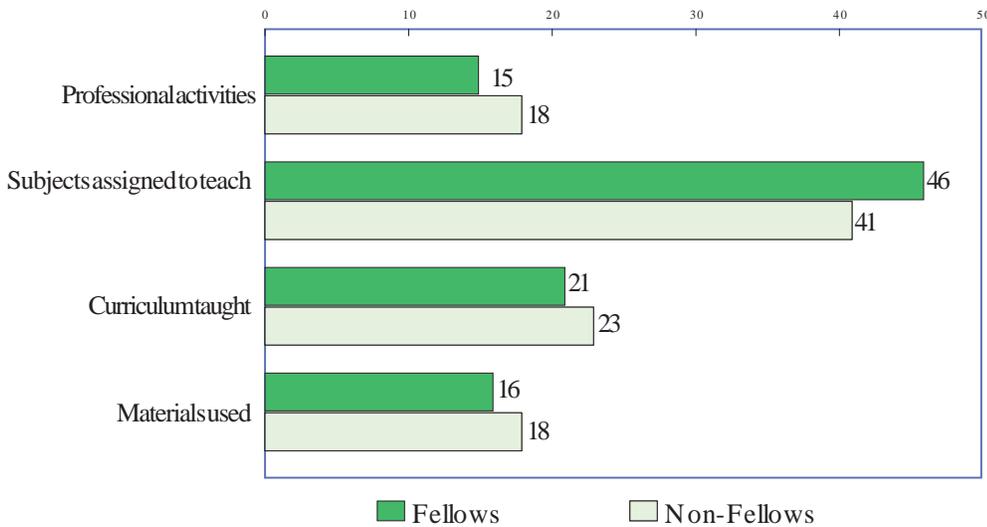
Teacher Leadership in the Schools

The 1987 system-wide surveys further contribute to the context in which we must understand findings on the Institute’s results, inasmuch as they pose questions about the attitudes of Fellows and non-Fellows to the leadership they felt able to exercise in their schools. In one question, respondents were asked to rate, on a scale of one (not at all) to five (a lot), the extent to which they felt they had a voice in determining certain aspects of their teaching situations.

As Figure 5 shows, a high proportion of Fellows—46 percent—report having little or no control over the subjects they are assigned to teach. Relatively few make the same claim about the materials they use, their professional activities, or the curriculum they teach; non-Fellows responses are remarkably similar. When asked directly about their participation in some aspects of their schools, however, Fellows and non-Fellows do not report having as much active participation as the question about their sense of control would suggest. Both groups said they had little involvement in planning class scheduling: 53 percent of Fellows and 52 percent of non-Fellows said they “never” participated in this planning, and only 12 and 23 percent, respectively, reported that this participation occurred “more than half the time” or “always.” Asked if teachers help select the curriculum to be taught in their schools, more than half of all Fellows (57 percent) and non-Fellows (52 percent) answered only “once in a while” or “never.”

“Nothing makes a teacher feel better about what he does than when he feels he is in control. The Institute provides us with the means for that control. Through each step of the process we see the unit develop and we know that it is truly ours. The seminar leader’s guidance is essential in helping us shape the final product, but in the end the unit is certainly ours.”
 -Institute Fellow, 1989

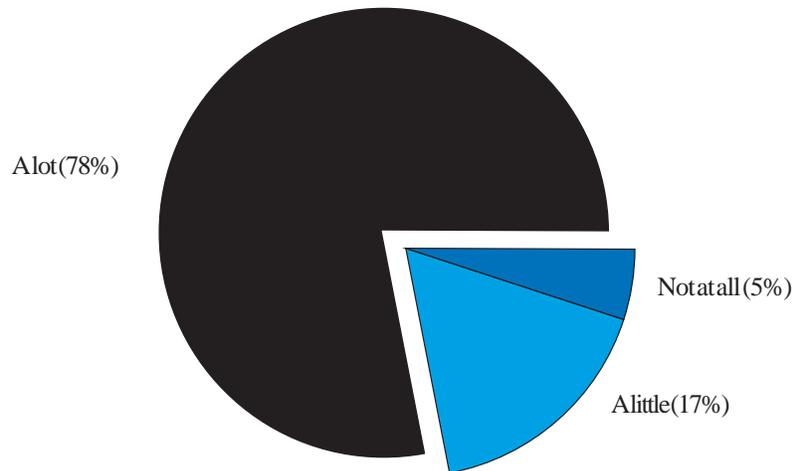
Figure 5: Percentage of New Haven teachers who say they have little or no voice in determining aspects of their teaching situation



Teacher Leadership in the Institute

In light of this it is not surprising that Fellows report that the opportunity to design their own curriculum was a major incentive for them to participate in the Institute: no fewer than 85 and as many as 91 percent of Fellows characterized it as an “important incentive,” and in no year did more than 7 percent discount its influence on their decision to apply. In the annual surveys almost all Fellows described developing their own curriculum unit as beneficial, as Figure 6 indicates.

Figure 6:How much Fellows said they benefitted from developing their own curriculum units



“As in previous years, this interest and control over subject matter gives me a fresh outlook, and I look forward to presenting the unit to the students.”
-Institute Fellow, 1986

No fewer than 93 percent in any other year agreed with the Fellows in 1990 that they had benefitted, at least to some extent, from developing their own curriculum unit.

Designing and teaching these units allows Fellows to exercise leadership in determining the conduct of their own classrooms; they also have an opportunity through the Institute Coordinators and Representatives—who are themselves Fellows—to exercise leadership in the Institute itself. At least two-thirds (67 percent) of all Fellows agreed that their School Representative had worked to ensure that teachers had a direct role in designing the program to meet their needs, and between 37 and 46 percent—except in 1986, when the figure was almost two-thirds (64 percent)—thought that the Institute Representative for their school provided them sufficient opportunity to contribute to planning Institute seminars. There is an Institute Representative in each school whose role it is to keep other teachers aware of and involved in the Institute’s activities and to facilitate the use of curriculum units.

Fellows commented further on the teacher leadership provided by Institute Representatives, as Figure 7 indicates. Responding to the question represented in the first chart, a significant majority (in all years more than two-thirds) of Fellows thought that their Representatives were helpful, maintaining frequent contact with teachers in their schools who were prospective Institute participants. This is in many ways the Representatives’ primary responsibility, and the positive response in subsequent questions reflects this close relationship between the Representatives and the teachers whom they represent.

Figure 7A: Fellows' opinions of how helpful the Institute Representatives in their schools were in maintaining frequent contact with teachers who were prospective Institute participants.

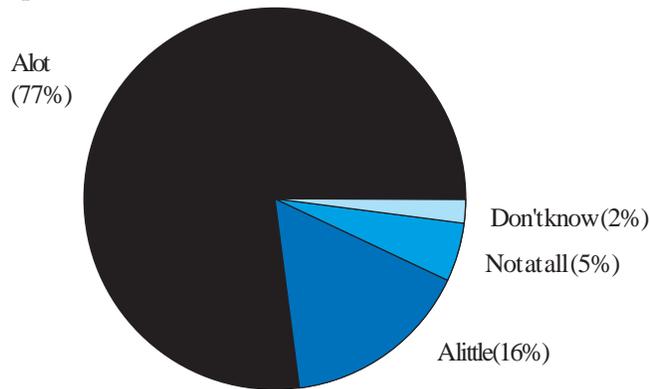
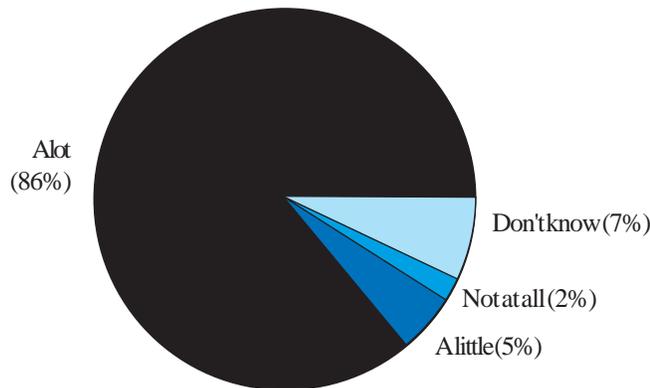


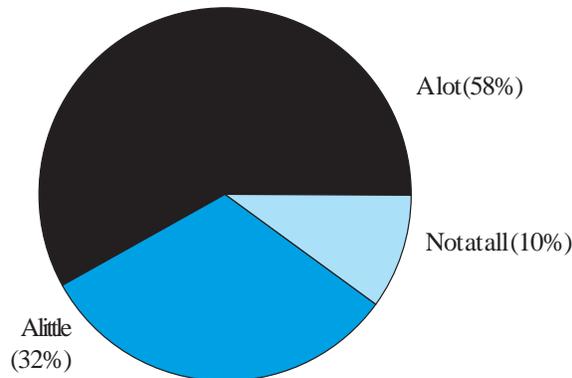
Figure 7B: Fellows' opinions of how helpful the Institute Representatives in their schools were in assisting teachers in applying to the Institute



“Our Representative was very supportive and enthusiastic. In fact I might not have taken the seminar without her encouragement and support. She was always there to answer questions and assist in ideas.”
-Institute Fellow, 1985

Fellows' responses demonstrate a similar satisfaction with the assistance offered by Institute Coordinators, who assist the seminar leaders in the operation of Institute seminars. As many as 95 percent agreed that the Coordinator in their seminar provided leadership without diminishing the collegial relationship within the seminar. Half or more of all Fellows (between 50 and 68 percent) in every year thought that the Coordinators provided strong teacher leadership within the Institute. Figure 8 shows Fellows' reactions to more specific aspects of the Coordinators' roles in 1990.

Figure 8A: Fellows' opinions of how helpful the Coordinators in their seminars were in monitoring the process of the seminar through observation and conversations with seminar members.



“Our seminar Coordinator was incredibly helpful to me. She listened to ideas, always answered questions, gave great suggestions, and was supportive when I almost felt like giving up.”
-Institute Fellow, 1985

Figure 8B: Fellows' opinions of how helpful the Coordinators in their seminars were in reporting information about Institute activities to seminar members.

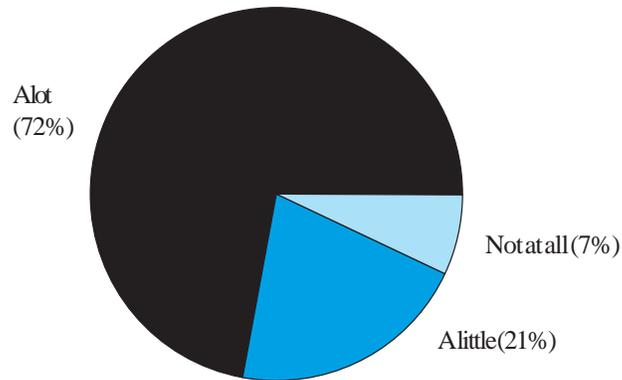
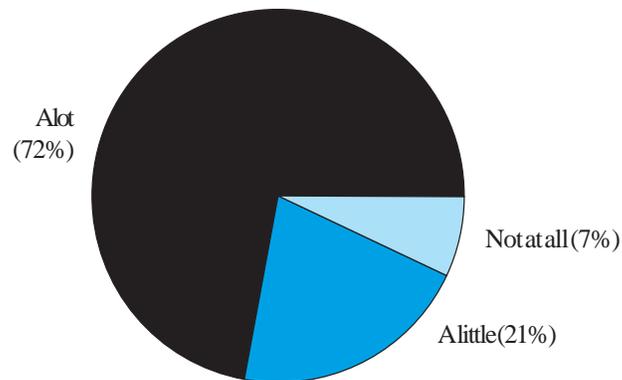


Figure 8C: Fellows' opinions of how helpful the Coordinators in their seminars were in providing information about guidelines for unit writing.



Of particular importance is the first chart: the Coordinator's observations and advice in the seminar are useful to Fellows, seminar leaders and the Institute administration alike, and they ensure that all of these groups are in frequent and fruitful communication. As Figure 8 shows, 90 percent of the 1990 Fellows thought that their Coordinator was helpful in this capacity. This positive response is characteristic of Fellows' opinions of the Coordinators: in none of these capacities did less than a majority of Fellows—in any year—view their Coordinators as helpful.

Finally, 86 percent of Fellows responding to the 1987 system-wide survey agreed that as a result of Institute participation, there is more opportunity for teachers to write their own curriculum. Almost half (49 percent) of Fellows on the same survey said that the Institute is run by New Haven teachers, and only 22 percent disagreed with the statement; of non-Fellows, 28 percent agreed, 61 percent did not feel strongly either way, and only 11 percent disagreed.

COLLEGIALITY

The prospect of collegiality among Public School teachers and between teachers and Yale faculty members strongly influenced the decision of many Fellows to participate. The opportunity to work with Yale faculty was an important incentive to between 69 and 80 percent of all Fellows, and a minor incentive to a further 16 to 22 percent; in no year

did fewer than 90 percent indicate that contact with Yale faculty had played some role in encouraging them to participate. Furthermore, no fewer than 82 and as many as 99 percent of Fellows cited the opportunity to work with teachers from other schools as an incentive; in all years more than half (between 54 and 68 percent) listed it as an important incentive. Of non-Fellows responding to the question of what might attract them to participate in the future, 72 percent saw working with Yale faculty as an incentive, and 82 percent were attracted by the idea of working with teachers from other schools. After completing the program Fellows expressed considerable optimism concerning collegiality as an element of school reform. Between 89 and 97 percent over five years thought that establishing more collegial relationships among teachers would improve education, and as many as 60 percent thought it would make a great improvement. Twenty-eight percent of non-Fellows saw such increased collegiality greatly improving education, and another 41 percent saw the promise of at least some improvement.

In the 1987 system-wide survey we asked Fellows to describe how supportive various individuals and authorities in their professional lives had been of their participation in the Institute, and asked non-Fellows to speculate on the support they would receive if they were to participate. Table 7 shows their responses.

TABLE 7: SUPPORT FELLOWS SAY THEY RECEIVED, AND NON-FELLOWS WOULD EXPECT TO RECEIVE, FOR INSTITUTE PARTICIPATION
(F=Fellows, NF=non-Fellows)

	Percent Highly supportive		Percent Somewhat supportive		Percent Not supportive	
	F	NF	F	NF	F	NF
School principal	45	36	38	46	18	18
Department chairperson	62	44	24	39	14	17
Curriculum supervisor	58	35	26	46	16	20
Other teachers	41	44	42	47	17	10
Central Office	31	23	33	44	36	33
Board of Education	35	24	32	40	32	37

In general, most Fellows—in almost all cases over two-thirds—feel that the individuals and authorities in their professional lives are or would be at least somewhat supportive of Institute participation. In particular, most Fellows and non-Fellows in 1987 indicated the support they had received or would expect to receive from other teachers and administrators in their schools. Still, many teachers, Fellows and non-Fellows alike, expressed a feeling of isolation in their schools. As Figure 9 shows, when teachers were asked to rate “my sense of isolation in my school” on a scale of one (low) to five (high), 41 percent of Fellows in 1982 and 36 percent in 1987 circled either four or five; 26 and 22 percent of non-Fellows, respectively, did the same. More non-Fellows than Fellows rated their sense of isolation as low (a rating of one), 30 against 15 percent in 1982 and 45 against 38 percent in 1987. This suggests that teachers who feel more isolated in their schools may be more likely to turn to the Institute. But of all teachers surveyed a substantial number—at least a quarter—indicated that isolation figured in their experience

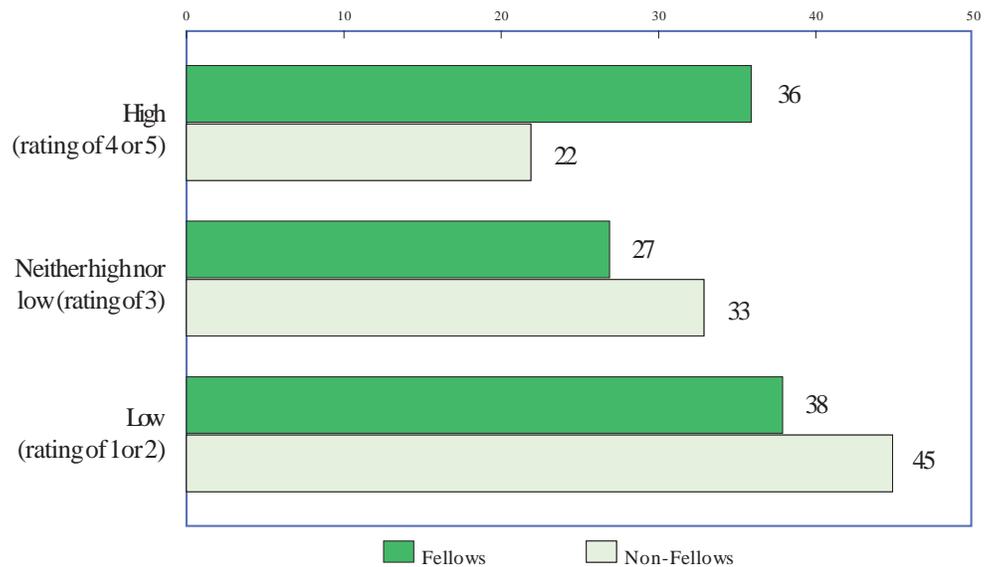
“It seems that this year, as well as past years that I’ve participated, there is a true spirit of camaraderie among our group. Although each of us interprets the literature and art individually, there is only constructive criticism offered. I find the seminar a time of rejuvenation—rethinking the reasons why I chose teaching as my career to begin with.”
-Institute Fellow, 1990

in their schools. This was echoed in their sense of isolation in teaching as a profession: 36 percent of Fellows and 22 percent of non-Fellows circled a four or five on the same scale—indicating that their sense of isolation was relatively high—in 1982, and 40 percent of Fellows, along with 28 percent of non-Fellows, did so in 1987. A sense of isolation was also an especially important theme in the early written evaluations, as mentioned previously.

“Normally, I am a very quiet person when I’m with other adults in a meeting or class situation, but the atmosphere created by the seminar leader was such that I opened up and shared my opinions on the readings along with everyone else. It seemed that [he] felt that everyone’s ideas were important—everyone had something valuable to contribute.”

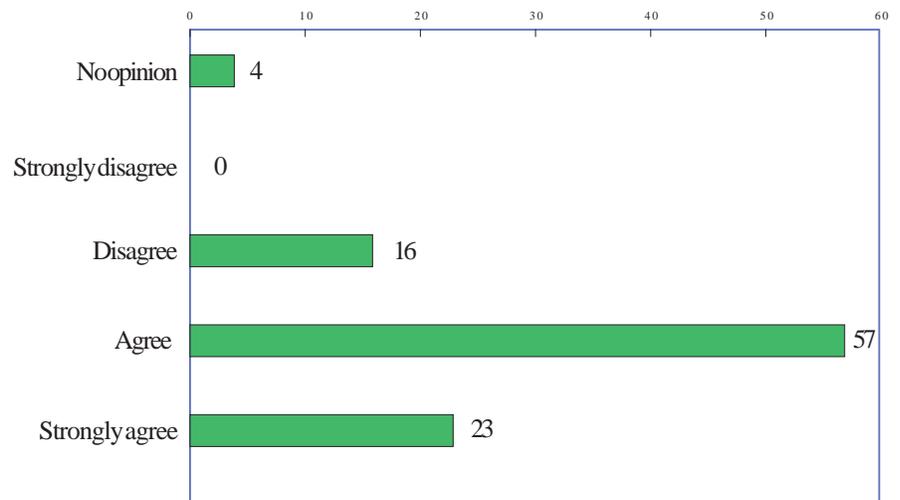
-Institute Fellow, 1990

Figure 9: Fellows' and Non-Fellows' rating of “my sense of isolation in my school” (in 1987)



The great majority of Fellows, however, reported that they had learned about Yale faculty and other teachers in New Haven through their participation in the Institute. Figure 10 shows statistics for 1990; no fewer than 80 and as many as 90 percent in any year thought that they had learned about other teachers and schools through the Institute, and almost as many—between 75 and 79 percent—said they had learned about Yale University and its faculty members. The difference in attitudes about Yale professors which this experience may bring about is illustrated by Table 8 (see page 27).

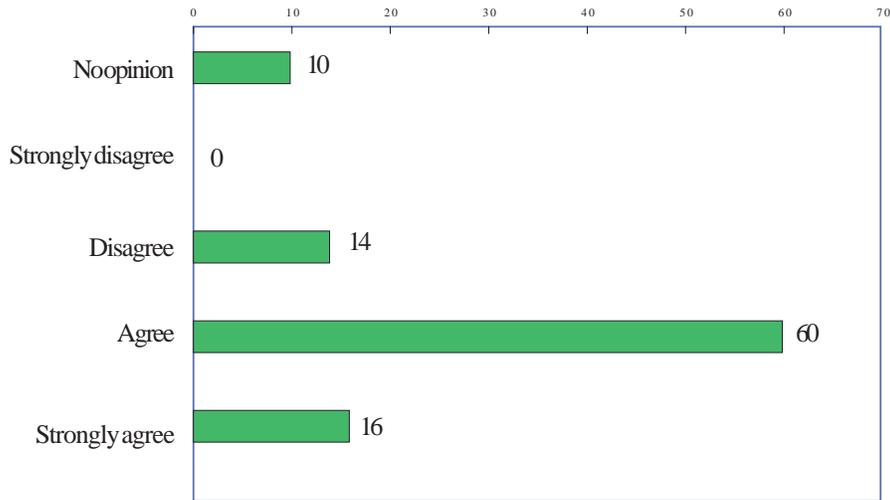
Figure 10A: Fellows' response to the statement "Through the seminar, I learned about other teachers and schools in New Haven." (in percent)



“From the very first meeting we were an extremely cohesive group, very supportive of each other, and eager to learn from each other. I came away feeling I had made seven new friends.”

-Institute Fellow, 1985

Figure 10B: Fellows' reaction to the statement, "Through the seminar, I learned about Yale University and its faculty members." (in percent)



Between 83 and 96 percent of Fellows said they had benefitted from discussing work-in-progress on their units with other Fellows in the seminars, and as many as 53 percent said they had benefitted from this exchange “a lot.” Almost as many felt they had benefitted from the discussion of work-in-progress on other Fellows’ units, with no fewer than 80 percent finding it beneficial and as many as 51 percent reporting that they had benefitted a lot.

Despite the fact that Fellows’ general impression of Yale before their participation is, as the section of this report on “Fellows’ Reactions to Yale” will show, worse if anything than that of non-Fellows, after participating in an Institute seminar their opinions of Yale professors as scholars and colleagues are markedly more positive.

TABLE 8: FELLOWS’ AND NON-FELLOWS’ ATTITUDES TOWARD YALE PROFESSORS

(F: Fellows; NF: Non-Fellows)

	Percent who agree		Percent who neither agree nor disagree		Percent who disagree	
	F	NF	F	NF	F	NF
Yale professors are uninterested in teaching.	9	6	18	55	73	39
Yale professors are extremely knowledgeable about their fields of study.	87	59	10	34	2	7
Yale professors are poor teachers.	3	4	32	57	65	39

“The Yale faculty member [who led the seminar] had a clear idea of our Fellow status, rather than student status. He planned, encouraged and coordinated feedback among us as well as being exceedingly available for advice and criticism....It was my best curriculum unit (so far), and by far the closest to ideal cooperation and fellowship I have experienced.”
 -Institute Fellow, 1990

TABLE 8 (CONTINUED)

	Percent who agree		Percent who neither agree nor disagree		Percent who disagree	
	F	NF	F	NF	F	NF
Yale professors are more interested in research than in teaching.	12	17	39	62	49	22
Yale professors have no idea what life is like outside the "ivory tower."	26	28	30	53	44	19

Significantly, Fellows' relationships with their colleagues in the schools also improved as a result of their participation in the Institute, as Table 9 shows. In 1987 almost two thirds (61 percent) said their relationships with other teachers had been positively affected, and improved relationships with school principals, curriculum supervisors and department chairs were cited by 41, 50, and 40 percent of Fellows respectively. No Fellows thought that these relationships had been negatively affected.

TABLE 9: CHANGE IN FELLOWS' RELATIONSHIPS WITH THEIR COLLEAGUES AS A RESULT OF INSTITUTE PARTICIPATION

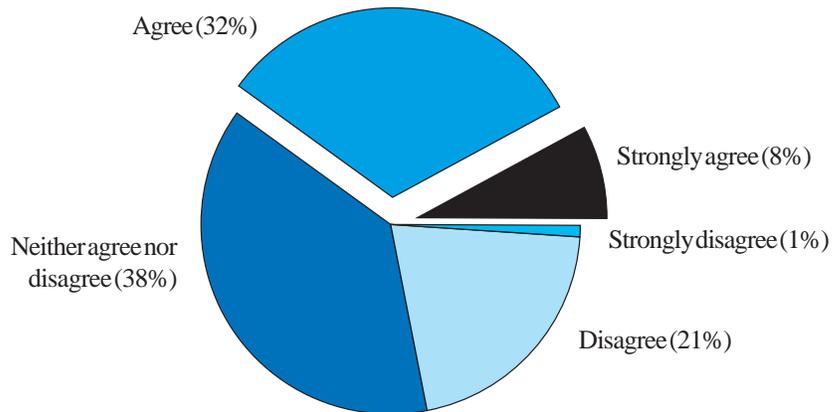
Positive	Percent who report that they experienced...		
	Negative	No change	
	Change	Change	
Other teachers in my school	0	39	61
My school principal	0	59	41
My curriculum supervisor	0	49	51
My department chairperson	0	59	41

When non-Fellows were asked if their relationships with teachers who had taken part in the Institute had changed, 40 percent said that they had changed positively, and only six percent perceived a negative change. Furthermore, over half (56 percent) of Fellows agreed that there was more discussion among teachers about the subjects they teach as a result of participation, and 37 percent thought there was more discussion among teachers about the students they teach.

Perceptions of the Teaching Profession

Finally, as Figure 11 shows, 40 percent of Fellows thought that, as a result of Institute participation, there is more collegiality among teachers in their schools; only 22 percent disagreed. These findings suggest that the collegial character of Institute seminars may have an ongoing influence on the lives of Fellows, perhaps providing a model for their professional relationships beyond the Institute.

Figure 11: Fellows' reaction to the statement, "As a result of Institute participation, there is more collegiality among teachers in my school."



III. FELLOWS' REACTIONS TO SELECTED ASPECTS OF THE INSTITUTE

A major portion of the Fellows' questionnaire was devoted to Fellows' reactions to their Institute experience. Some of the responses have been discussed in earlier sections. In this section, we report Fellows' reasons for participating in the Institute and their reactions to selected features of the Institute program.

WHY FELLOWS PARTICIPATE

We asked Fellows to comment specifically on the incentives to their participation. Having access to Yale facilities was important to many. In 1990, almost half (49 percent) considered the opportunity to use the libraries and other academic facilities an important incentive, and an additional 36 percent ranked it as a minor incentive. Use of athletic facilities was an important incentive only to 9 percent; for 61 percent, it was not an incentive.

Thirty percent of Fellows indicated that the opportunity to have their curriculum units published and circulated by the Institute was an important incentive, and 38 percent listed it as a minor incentive. Similarly, 29 percent of non-Fellows—who were asked what aspects of the program would contribute most to their decision if they were to participate—said that having their work published would be a major incentive; 36 percent said it would be a minor one. A relatively small number of Fellows were attracted by the opportunity to have their course of study recognized for credit in a degree program: only 18 percent listed it as a major incentive, and 60 percent said it was not an incentive at all. Non-Fellows found this prospect more persuasive: 46 percent said it would be a major incentive, and a further 28 percent said it would be a minor incentive.

The collegiality of the Institute has had a major influence on Fellows' decision to participate, as Figure 12 shows.

“The resources available were a strong point. The library is good, as is the computer center, and the staff were useful and helpful.”
-Institute Fellow, 1990

“The strength of the Institute is in its outstanding seminar leaders. Their willingness to bring the latest information and research to us and still correct our first and second drafts shows to me what flexible and dedicated teachers they are.”
-Institute Fellow, 1990

Figure 12A: The opportunity to work with Yale faculty as an incentive to Fellows' participation in the Institute

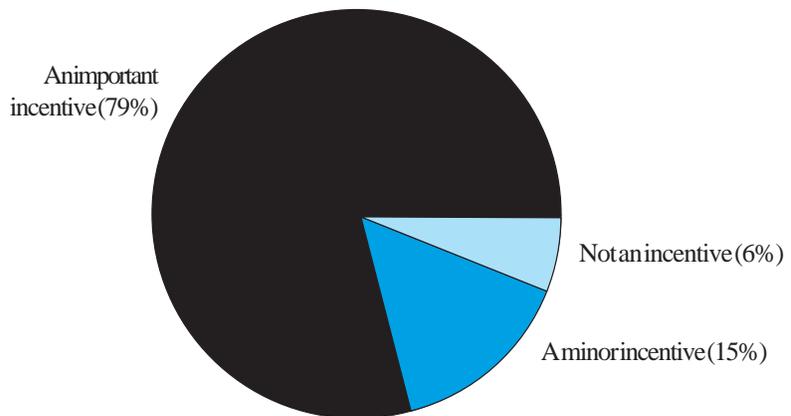
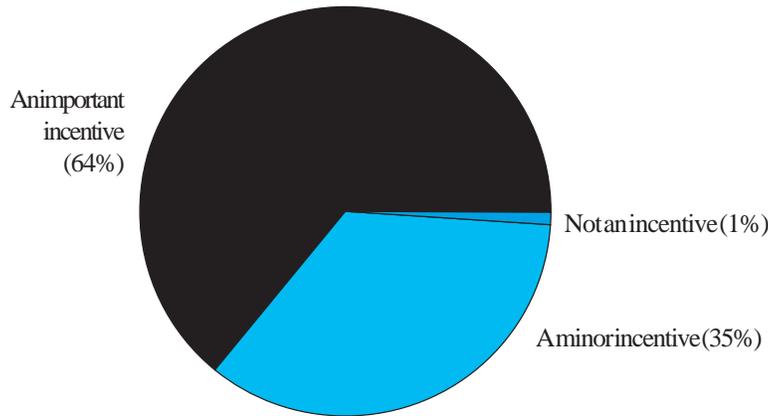


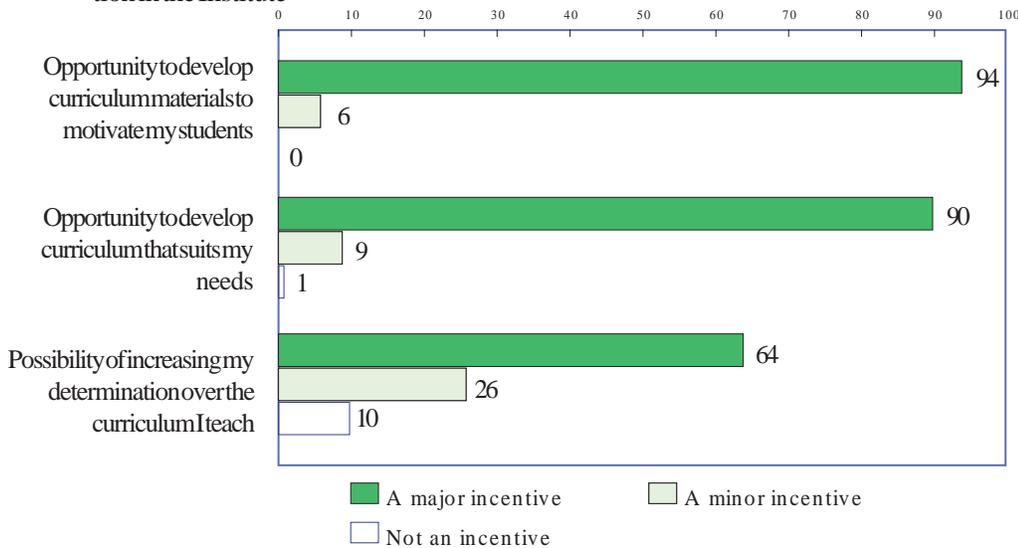
Figure 12B: The opportunity to work with teachers from other schools as an incentive to Fellows' participation in the Institute



Non-Fellows also found the opportunity to work with Yale faculty and other teachers potentially influential, though in a slightly lesser degree: 39 percent thought interaction with the faculty would be a major incentive, and a further 32 percent characterized it as a minor incentive. Forty-eight and 34 percent respectively thought the same of the opportunity to work with other teachers.

The opportunity to develop curriculum units to suit their students, and to exercise greater control over the curriculum they taught, influenced Fellows very strongly, as Figure 13 shows.

Figure 13: 1990 Fellows' opinions of curriculum units as an incentive to participation in the Institute



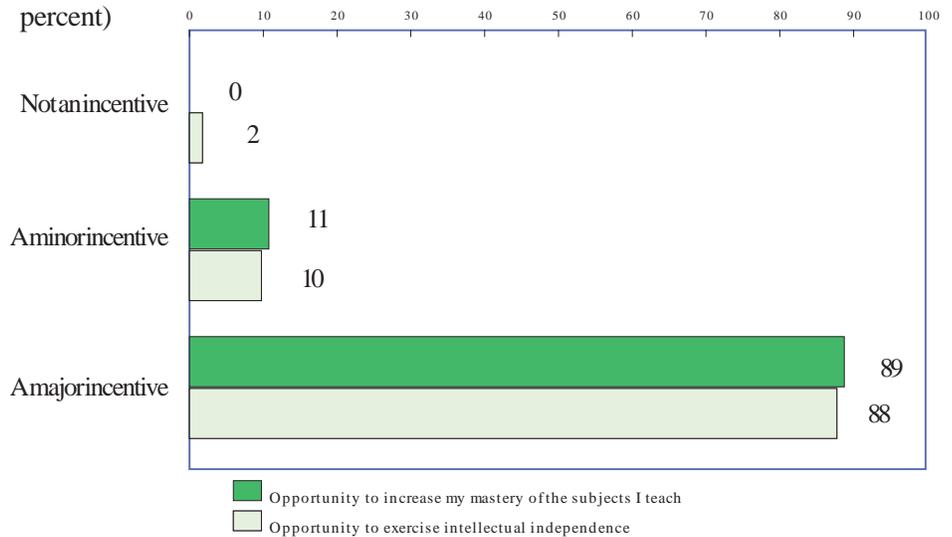
“I feel the effects of having participated in the Institute already. My mind is busy with thoughts about school, with doing further study in the area of my unit, and I’m anxious to begin posing new challenges to my students.”
 -Institute Fellow, 1988

Non-Fellows also found these opportunities potentially persuasive, though again they were less enthusiastic than Fellows: 75, 64 and 46 percent respectively [from top to bottom] thought of them as major incentives.

“So often, ‘intellectual’ pursuits are not fostered for teachers on the elementary level. They run a very poor second to the development of methods over content. As important as methods are, this approach leaves an important gap in our pupils’ development, as well as our own—the Institute seminar reverses this approach. The intellectual pursuits motivated by my seminar leader and expanded by our group led naturally into the development of a subject matter unit which certainly did not neglect methods.”
-Institute Fellow, 1990

The opportunity for interdisciplinary work was a major incentive to 59 percent of 1990 Fellows and a minor one to 34 percent; for non-Fellows, 45 and 38 percent respectively anticipated the same. Figure 14 makes clear that the great majority of Fellows were persuaded by the academic and intellectual opportunities which the Institute offers:

Figure 14: 1990 Fellows' opinions of increased mastery of their subject and intellectual independence as incentives to their participation in the Institute. (in percent)



Non-Fellows were attracted to these opportunities too: 65 and 61 percent respectively thought they would be major incentives to participation. Of particular interest is the response of elementary school teachers. As was stated in the introduction, elementary school teachers were not fully included in the program until 1990. In that year, 95 percent said that the opportunity to exercise intellectual independence had been a major incentive to their participation, a degree of enthusiasm which may reflect the relatively small number of opportunities for study on the Institute’s level that are open to teachers of the youngest grades.

The benefits participants say they derive provide an implicit explanation for the success of the Institute in attracting teachers. Table 10 ranks various aspects of the program according to the degree to which Fellows in 1990 considered them useful.

TABLE 10: USEFULNESS OF ASPECTS OF THE INSTITUTE'S PROGRAM TO FELLOWS IN 1990

	Percent of Fellows who found each useful...				
	to a great extent	to a moderate extent	to a small extent	Not at all	Did not use
Knowledge gained of subject matter	84	10	4	1	0
Seminar leader	75	19	4	1	0
Program overall	71	26	3	0	0
Stipend	56	25	12	7	0
Contact with Yale faculty	54	13	21	9	3
Unit writing guidelines	49	30	16	3	1
Interaction with other Fellows	44	36	14	4	1
Program schedule	43	29	23	5	0
Seminar bibliographies	42	34	15	3	6
Membership in the Yale Community	32	22	32	9	6
Lectures	21	40	24	11	3

"The experiences were extensive, enlightening, and refreshing educationally. The program is an intellectual awakening!"
-Institute Fellow, 1987

These figures from 1990 are highly representative of findings from other years. The factors which emerge as most persuasive in this analysis are central to the concept of the Institute: collegiality, both with Yale faculty and with other teachers; the opportunity for Fellows to write their own curriculum units, and the control this gives them over their teaching; academic preparation in the subject matters Fellows teach; and intellectual stimulation. The most important of these potential incentives and perceived benefits may therefore be summarized as the opportunity to develop a curriculum unit by working with Yale and school colleagues in order to apply in their own teaching what they have learned in Institute seminars. In every year of the surveys, ninety percent or more of Fellows found that the opportunity to write curriculum suited to their needs and designed to motivate students was a major incentive to their decision to participate initially or again in the Teachers Institute.

PROGRAM SCHEDULING AND DESIGN

Readings

Fellows in both humanities and science seminars are asked to read a substantial amount of material related to the topic they are studying, both in preparing for seminar discussions and in researching the curriculum units they write. Figure 15 indicates how much Fellows said they read in 1990.

As the chart shows, over half (52 percent) of Fellows in humanities seminars read more than a thousand pages to prepare for their meetings. Although seminars in the sciences tend to involve shorter—though generally more time-consuming—assigned readings, three quarters (74 percent) of the Fellows who participated in them read over a thousand pages in researching their curriculum units, along with 80 percent of their colleagues in the humanities. Still, no fewer than two thirds (65 percent) of Fellows in any given year agreed that the reading period provided in the Institute’s schedule was long enough for them to complete the reading they most wanted to do.

“I read and used over half of the books recommended. I discussed, quite often, my choice of reading with my seminar leader and he was quite helpful, especially with the refinement of my topic.”
 -Institute Fellow, 1985

Figure 15A: Number of pages read by Fellows in humanities and science seminars to prepare for seminar meetings (in percent)

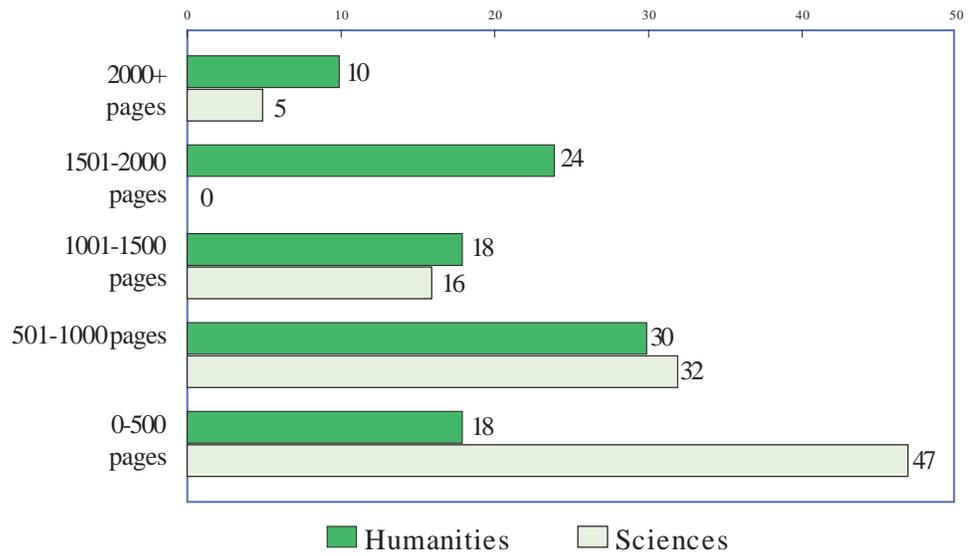
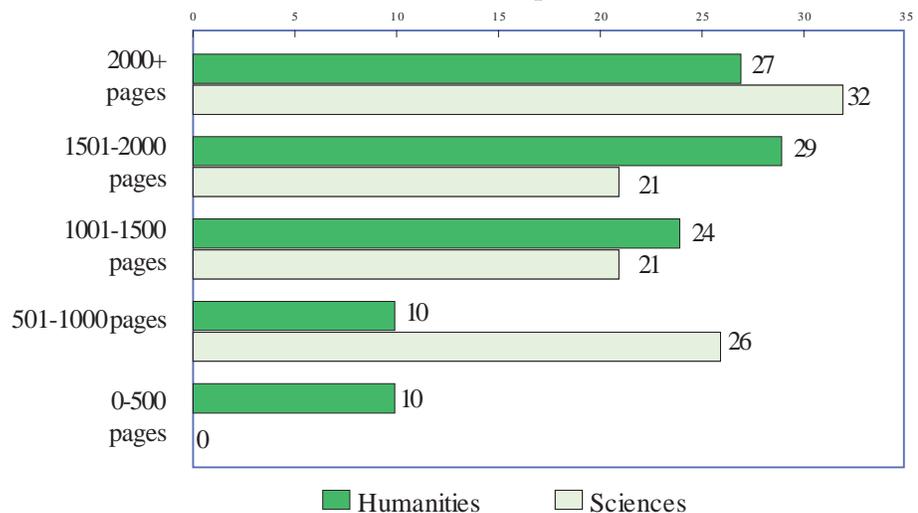


Figure 15B: Number of pages read by Fellows in humanities and science seminars to research their curriculum units (in percent)



“The bibliography for the seminar I was in proved very helpful as a starting point in focusing on a final unit topic. Most of my early research came from this list.”
 -Institute Fellow, 1984

Fellows' Reactions to the Institute

At the beginning of each Institute session, seminar leaders provide Fellows with an annotated bibliography of sources relevant to the seminar's topic. Fellows, in turn, include annotated bibliographies for students and teachers in their finished units. Between 58 and 72 percent of Fellows found the general bibliography useful, and even more—between 71 and 81 percent—thought that the bibliographic assistance provided by the syllabus of weekly readings was useful. Two-thirds or more in each year agreed that the bibliographies were sufficiently annotated. Between 76 and 89 percent agreed that suggestions made to them individually by their seminar leaders had been valuable. Fellows found these different forms of bibliographical assistance useful in a variety of ways. In 1990, 65 percent said they had been helpful in preparing for seminar meetings, 76 percent said they were of assistance in researching their curriculum units, and 70 percent agreed that they would be useful for further reading in the future. Overall, between 68 and 84 percent of Fellows found the bibliographies useful to a great or moderate extent, and no more than 5 percent thought they were not at all useful.

Talks

In the first two months of each session the Institute schedules a series of talks given by Yale faculty members. The topics of the talks may reflect the content of a seminar being offered that year, preview a seminar that could be offered the following year, or address some other subject of scholarly or current interest. The speakers are usually past or prospective seminar leaders, though other faculty from the University may offer their special expertise in response to teacher interest.

In 1990, as Table 11 shows, over half (55 percent) of all Fellows thought that the talks offered an overview of Fellows' work in the seminars to at least a moderate extent, with only 12 percent disagreeing entirely. All but 4 percent thought that the talks offered a sense of collegiality and common purpose among Fellows, and over half (53 percent) found this true to a great extent. Fellows agreed universally that they were an occasion for a pleasant social gathering, and, more importantly, 98 percent thought that they offered intellectual stimulation, with 74 percent saying so "to a great extent." A great majority of Fellows that year said that the talks spurred them to read more about the topic (82 percent), discuss the topic with their students (82

**TABLE 11: PERCENTAGE OF FELLOWS WHO THOUGHT
INSTITUTE TALKS WERE SUCCESSFUL IN 1990**

	To a great extent	To a moderate extent	To a small extent	Not at all
In providing an overview of Fellows' work in the seminars	25	30	33	12
In providing a sense of collegiality and common purpose among Fellows	53	30	13	4
In providing an occasion for a pleasant social gathering	44	38	19	0
In providing intellectual stimulation	74	24	0	1

"The principal value of the talks was to answer a hunger in this teacher for hearing information from people who are able to work in depth in various fields."
-Institute Fellow, 1984

percent), and discuss the topic with other teachers (94 percent). “to a great extent.” A great majority of Fellows that year said that the talks spurred them to read more about the topic (81 percent), discuss the topic with their students (83 percent), and discuss the topic with other teachers (94 percent).

Over five years, between 75 and 89 percent of Fellows agreed that the Institute had scheduled the right number of talks, and no fewer than 80 percent of Fellows in any year found the talks useful.

“The process, although it was difficult for me to meet the deadlines, is good in that it is a step-by-step approach and I am always amazed, when I think I have nothing to write that, in fact, I have a lot.”
-Institute Fellow, 1984

Schedule

The Institute schedule has evolved over the years to accommodate Fellows' work during both the school year and the summer. Fellows test aspects of their units-in-progress in their classrooms during the school year, and complete the units during the summer recess. There was mixed reaction to questions that posed possible changes in the schedule: between 9 and 19 percent of the Fellows wanted the schedule changed so that the entire session would be conducted during the summer, and between 16 and 30 percent wanted all activities to take place during the school year. There are obviously advantages and disadvantages to both proposals. Between 38 and 49 percent of Fellows work at least part time during the summer months, and they must also balance their participation with their professional workload during the school year.

Satisfaction with the schedule was high, but there was also a range of response to the questions about schedule. The majority of Fellows (between 62 and 74 percent) believed that the writing deadlines connected with their units occurred at the right times in relation to the Institute calendar. Over the years of the survey, between 44 and 62 percent agreed that the deadlines occurred at the right times in relation to the school calendar and between 39 and 52 percent disagreed. Nonetheless, between 92 and 96 percent judged the Institute schedule to be “useful,” and between 68 and 78 percent agreed that, all things considered, the Institute schedule is about the best it can be.

FELLOWS' REACTIONS TO YALE

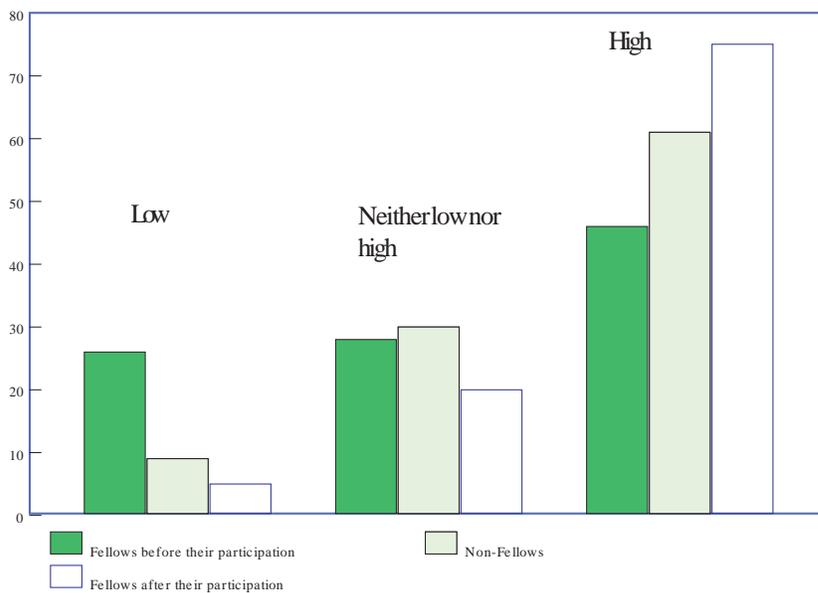
All Institute seminars and lectures are conducted on the Yale campus, and Fellows receive the benefits of membership in the university community—including full library privileges and the opportunity to use athletic and other facilities—for a full year from the beginning of the session in which they participate. The surveys speak strongly of the Fellows' appreciation of the University setting and its resources. As indicated in the previous section, working with Yale faculty was an important incentive to participation for a majority of Fellows, and a small percentage—between 12 and 25 percent—sought out faculty members other than their seminar leaders. Access to academic facilities such as the libraries was an incentive for no fewer than 82 percent and as many as 96 percent, with as many as 63 percent indicating that it was an important incentive. In fact, between 73 and 96 percent of Fellows in any given year said they used these facilities, and more than half in most years said they used them a lot. Athletic facilities were a less important but still significant incentive to participation, cited by between 39 and 52 percent of Fellows (though “important” to only 7 to 17 percent). Very few, however, actually made use of them: 14 percent visited the gym in 1987, and only one Fellow took advantage of it in 1990. Museums—attended by as few as 24 and as many as 64 percent of Fellows—were

somewhat more popular; the wide discrepancy in these last figures is probably attributable largely to the difference from year to year in the use that specific seminars made of Yale's collections.

Fellows and non-Fellows believe that Yale University is resistant to change in roughly equal proportions, with 28 percent of Fellows and 26 percent of non-Fellows agreeing with this statement; 33 and 26 percent, respectively, disagreed. Ninety-seven percent of Fellows and 88 percent of non-Fellows agreed that Yale has a wealth of cultural and educational resources. Sixty-six percent of Fellows and 52 percent of non-Fellows said that Yale makes a positive contribution to the surrounding community. Despite these relative consistencies, however, Institute participation significantly changes teachers' general opinion of Yale University. Figure 16 shows how favorably or unfavorably non-Fellows and Fellows, both before and after their participation, report they looked on Yale.

“Having access to the Yale community has been an incentive and a welcome bonus to teaching in New Haven.”
-Institute Fellow, 1987

Figure 16: Fellows' and Non-Fellows' opinions of Yale University (in percent)



“Just being a part of the Yale family is a plus within itself.”
-Institute Fellow, 1989

As these graphs indicate, Fellows' impressions of the University before their participation are, if anything, less favorable than those of non-Fellows, but Fellows have a markedly more positive attitude after having participated. Their optimism about the accessibility of the University through the Institute and the favorable response to Yale and its faculty may help to explain why between 76 and 88 percent of Fellows, as opposed to 64 percent of non-Fellows, responded that school teachers having an affiliation with a university would improve education in schools.

IV. THE CURRICULUM UNITS

The curriculum units developed by Fellows during their Institute participation represent the most tangible outcome of the Institute. A catalog of the units developed between 1978 and 1990 offers testimony to the range and variety of Fellows' interests and their creativity. A section of the Fellows' questionnaire asked about Fellows' experiences developing their units and their uses of both units that they themselves developed and units developed by other Fellows. In addition, the system-wide surveys investigated the uses by non-Fellows of units developed by Institute Fellows and the reactions of both Fellows and non-Fellows following their use of the units.

DEVELOPMENT OF THE UNITS BY FELLOWS

Fellows develop their curriculum units according to a process which has five steps to guide them to the final product. Table 12 illustrates the primary sources of Fellows' ideas for their units:

TABLE 12: PRIMARY SOURCES FOR FELLOWS' IDEAS FOR THEIR UNITS
(as a percent of Fellows responding)

	1986	1987	1988	1989	1990
A topic that I think is important for my students to study	44	38	27	32	41
A topic I have been interested in	17	10	38	34	22
A topic I have taught on which I want to do further work	19	29	16	13	20
A topic my students were interested in	0	14	5	8	6
The written description of my seminar	8	2	5	2	2
My reading for the seminar	0	2	3	2	0
A previous Institute seminar	3	0	3	2	2
A previous Institute talk	0	0	0	0	2
Discussion in my seminar this year	3	0	0	2	0
A requirement of my departmental curriculum	0	0	0	0	0
Other	6	5	3	4	4

"I wrote my unit to develop an idea I have been playing with over the past few years, and in fact, have been even teaching. This seminar gave me a chance to develop and to organize it into a coherent whole, and it will give me a chance to use it in my humanities classes. The unit will become the major focus of my humanities work."
-Institute Fellow, 1989

Most Fellows selected either a topic which they thought was important for their students to study or a topic they were interested in: as many as 44 percent and no fewer than 27 percent over five years cited the former, and between 10 and 38 percent cited the latter. Many topics are shaped by the interdisciplinary nature of the seminars, and 81 percent of Fellows agreed that the Institute’s interdisciplinary approach had broadened their teaching curriculum. Fellows also responded positively to the Institute’s writing process. Between 94 and 100 percent of Fellows agreed that it encouraged them to formulate, reformulate and enlarge their unit as they developed it from draft to draft; between 28 and 40 percent agreed strongly. Three quarters or more (between 73 and 88 percent) said that the writing process had encouraged them to prepare the draft naturally, making the final product seem more effortless.

Fellows reported benefitting from the process of writing a unit in a number of ways. Table 13 shows the responses of Fellows in both humanities and science seminars.

TABLE 13: PERCENTAGE OF FELLOWS IN HUMANITIES AND SCIENCE SEMINARS WHO FOUND THE INSTITUTE WRITING PROCESS HELPFUL

	A lot		A little		Not at all	
	Hum.	Sci.	Hum.	Sci.	Hum.	Sci.
Sharpening writing skills	69	74	27	21	4	5
Sharpening research skills	55	68	39	32	6	0
Organizing thinking and refining ideas	90	84	10	11	0	5
Pacing writing	73	63	25	32	2	5

Despite the difference in the subjects they usually teach, Fellows in humanities and science seminars were equally positive about the benefits of the Institute writing process. Ninety-six and 95 percent of humanities and science teachers respectively reported improvement in their writing skills, and equivalent percentages reported having been helped with sharpening their research skills and with pacing their writing. Ninety percent of humanities Fellows and 84 percent of Fellows in the sciences credited the process with helping them “a lot” with organizing their thinking and refining their ideas. Responses were similarly positive when Fellows were asked about the feedback they received from other Fellows and from their seminar leaders, and learning about the writing process in general.

Furthermore, new Fellows reported benefitting from the unit writing process as much as returning Fellows did, despite the fact that they had no previous experience with it. In 1990 their response to the questions in Table 13 was often more positive than that of returning Fellows. Eighty-four percent of new Fellows, for instance, thought that the process had sharpened their research skills “a lot,” as compared with 59 percent of returning Fellows; and more than two-thirds (68 percent) thought they had learned “a lot” more about the writing process, a claim made by only 54 percent of returning Fellows.

The Institute’s schedule also encourages Fellows to experiment with their units-in-progress in their own classrooms. Between 48 and 67 percent of Fellows tried out the subject matter or strategies of their units in their classes, and of those three quarters (from 79 to 95 percent) said that this helped to shape their final units.

“I find this process to be perfect for me. I like the graduation of writings and the way the completed unit is structured. I always try to rush things, but this writing process has really been well planned.”

-Institute Fellow, 1984

“As a writing teacher totally committed to teaching writing as a process and as an eight-year participant of the Institute, I believe we have the ideal guidelines. If a Fellow follows each step, the unit flows and grows very naturally, practically writes itself.”

-Institute Fellow, 1985

APPROACHES, ACTIVITIES AND SKILLS TAUGHT IN THE CLASSROOM

Fellows were asked to describe their past teaching generally as well as their teaching of Institute units specifically, and the results show that the use of Institute units makes a significant difference in some of the approaches and activities teachers use as well as the skills they teach. Figure 17 makes a few representative comparisons.

It is generally accepted that students learn more, understand better, and remember what they have learned longer when they are actively engaged in the learning process. As Figure 17 indicates, Fellows teaching their own units put much more emphasis on that sort of active learning, and rely less on evaluations such as test-taking.

Figure 17A: Fellows who teach analyzing writing and writing from research 'to a great extent' (in percent)

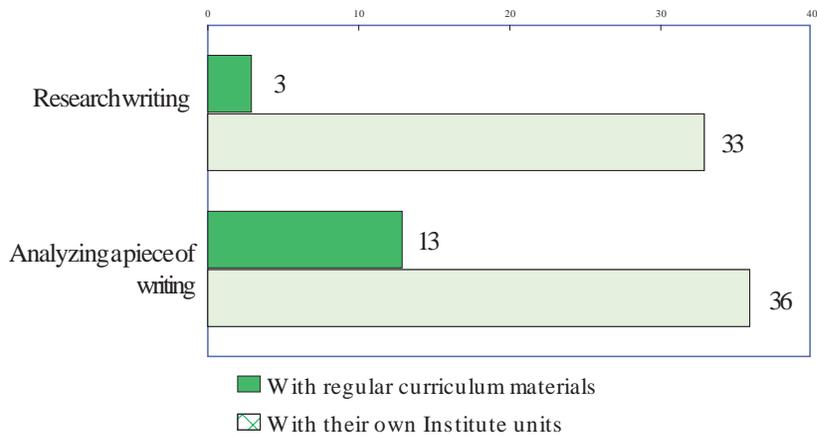
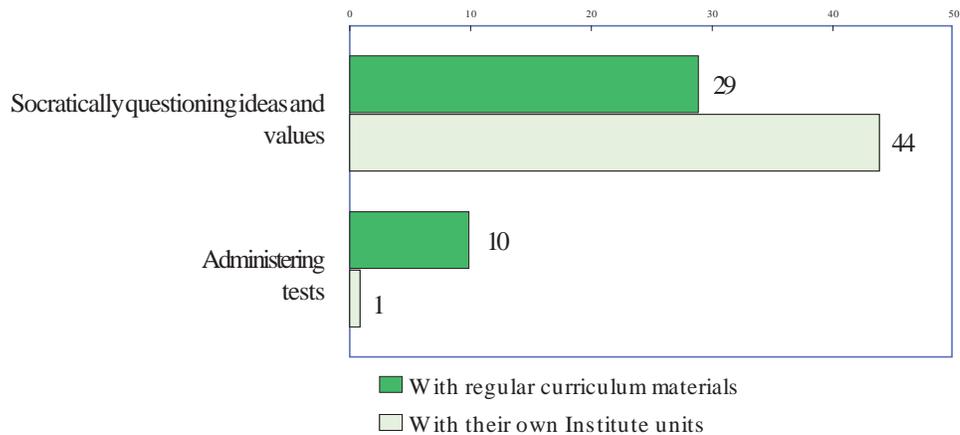
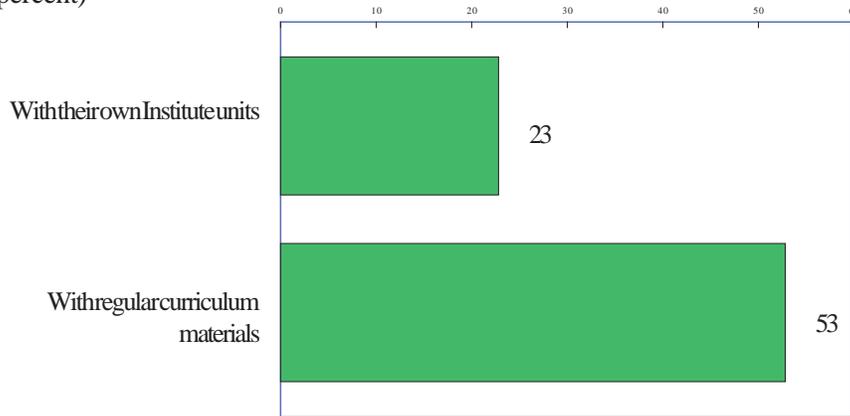


Figure 17B: Fellows who administer tests or Socratically question ideas and values 'to a great extent' (in percent)



“My curriculum unit will stimulate my students to do more reading, performing, and writing. It should make many plays come alive for the students through their active participation. Their learning should become more active and participatory. I hope to improve their literary analysis skills and comprehension by understanding cause and effect, the differences between fantasy and reality, and past and present.”
 -Institute Fellow, 1988

Figure 17C: Fellows who teach preparing for exams to a 'great or moderate extent' (in percent)



“After researching this unit, I feel competent and more confident in approaching this subject. I know that it would enlighten other teachers who are hesitant about teaching a subject they are not familiar with.”

-Institute Fellow, 1990

Furthermore, students of all levels appear to benefit from Institute units. Fellows were asked to identify the groups of students for which the activities, approaches and skills contained in their units were designed: between 67 and 80 percent said their units were suitable for average students, while 47 to 63 percent thought they could be taught to the most advanced students and 37 to 62 percent thought they could be taught to the least advanced students. Fellows experienced success in teaching units to all these groups, as is discussed below.

UNITS IN USE IN THE NEW HAVEN PUBLIC SCHOOLS

From the outset the Institute has been interested in the extent and pattern of the use of Institute-developed curriculum units by Fellows and other teachers. Though the units are developed first for their authors’ own use, they are written for an audience of teachers, and we have encouraged teachers throughout the New Haven Public Schools to make use of them in their own classrooms. We are accordingly interested not only in how Fellows use their own units, but how Fellows use other Fellows’ units and how non-Fellows use Fellows’ units. We have conducted a number of surveys over the last ten years to investigate these types of unit use. The first, in 1981, was administered to Fellows and non-Fellows and concerned unit use alone. In 1982 we added questions from the 1981 survey to our first system-wide general survey, and in 1985 we further refined our approach for a second survey solely on the topic of unit use. In 1987, based on what we had learned and what we had not learned from the three previous questionnaires, we added a substantial section of questions on unit use to the system-wide survey of that year. All of these surveys were given to both Fellows and non-Fellows; those given in 1981 and 1985 reflect only the use of units in the years in which they were administered, while the system-wide surveys in 1982 and 1987 asked teachers to report their use of Institute units in any previous year as well. Because the response rates fell well short of including all the teachers who may have used Institute units, the 1981 and 1985 surveys yield a substantial undercount of units used, inasmuch as we did not extrapolate from the results, but simply tabulated them.

Furthermore, beginning in 1986 we decided we would ask Fellows at the conclusion of their participation each year about how they planned to use their new units, and accordingly included a section of questions on that topic in the annual Fellows surveys. We intended in the future to make comparisons between what Fellows anticipate, and

what Fellows and non-Fellows actually report about unit use that has already occurred when surveyed system-wide. The current data from the four system-wide surveys and the Fellows survey thus consist of responses to different questions asked in different years, and direct comparison is difficult. These data should therefore be understood more as documenting the minimum amount of unit use occurring at a given time, rather than as demonstrating changes in this use over time.

The Institute conducted its first survey on the use of Fellows' curriculum units in April, 1981. The survey indicated that almost all of the units written up to then were still being used not only by their authors but by other teachers as well. They were being taught that year in approximately 700 school classes attended by almost 30,000 students. Because at that time there were about 9000 secondary school students in New Haven, these figures indicate that most students were studying Institute materials in at least one of their courses, and that many students were studying Institute materials in several courses. The survey conducted in 1985 determined that the number of school classes in which Institute units were taught had more than doubled since 1981, to more than 1500. At least a third of all New Haven teachers—Fellows and non-Fellows—were found to be using Institute units, with 71 percent having used two or more and 43 percent having used three or more.

“I also found the study and research for my unit exciting and renewed my interest in teaching the subject matter for the next school year. The seminar leader's comments and encouragement certainly helped me in preparing my unit and definitely built my self-esteem (I can still do a good, innovative unit with research even while working full-time and doing readings for seminars).”
-Institute Fellow, 1990

The system-wide survey of 1982 asked Fellows and non-Fellows to report how many Institute units they had used in any year. Forty-one percent of non-Fellows, along with 90 percent of Fellows, said they had used at least one; 74 percent of Fellows said they had used two or more, and 79 percent said they had used one that year. Responding to the same questions on the 1987 system-wide survey, 96 percent of Fellows said they had used at least one Institute unit; 82 percent said they had used two or more, and 68 percent said they had used one that year. Only 22 percent of non-Fellows, however, reported having used an Institute unit, and only eight percent had used one that year. The apparent drop in unit use by non-Fellows between 1982 and 1987 may be partly attributable to the end in the early 1980s of New Haven's city-wide in-service workshops, at which Fellows frequently presented the units they wrote to their colleagues. Although we attempted to offset this loss by creating teams of Fellows to make presentations in schools on individual Institute seminars and the units that had been written in them, the statistics above suggest that these efforts were of limited success. To the extent that the elimination of these workshops is responsible for a reduction in unit use, it is incumbent upon us to find new ways of encouraging non-Fellows to make use of the curriculum resources of the Institute, not the least because of the success non-Fellows have reported in adapting Fellows' work for their own classrooms.

In the annual Fellows' surveys, Fellows have been asked to describe how they plan to use the unit they have just written. The majority of Fellows—between 68 and 80 percent—expected to teach their units in one or two different courses, most of which were to be a half-year or a year in duration; others expected to teach units in as many as five courses. Each course may be taught to more than one class of students: for example, a teacher might teach world history once a day to one class and American history, a second course, two times a day to two different classes. Table 14 shows in how many classes Fellows expected to teach their new units.

TABLE 14: NUMBER OF CLASSES IN WHICH FELLOWS EXPECT TO TEACH THEIR NEW UNITS

	Percent of Fellows in 1986	Percent of Fellows in 1987	Percent of Fellows in 1988	Percent of Fellows in 1989	Percent of Fellows in 1990
1 class	26	31	19	29	31
2 classes	22	36	40	16	22
3 classes	22	8	14	7	17
4 classes	11	8	12	21	15
5 classes	20	17	16	28	15

Because of confusion among the respondents about the relationship of the term “classes” to “courses” in our survey, some answered this question by giving the total number of classes in which they taught Institute units, while others gave the number of classes per course in which they taught Institute units. For the latter group, then, the number of classes would have to be multiplied by the number of courses they reported to get an accurate count of the total number of different classes of students to whom they taught Institute units; the table above therefore also represents a minimum, and is an undercount.

Based on these figures, and on the average size of classes in New Haven, we have calculated that 1990 humanities Fellows alone—not including Fellows in the sciences, former humanities Fellows, or non-Fellows who teach Institute units—anticipated teaching their own, new Institute units to over 3,000 students in the New Haven Public Schools in the 1990-1991 school year. Furthermore, this is only a fraction of the unit use characterized by all of these studies taken together: as the responses over ten years demonstrate, the curriculum units available to New Haven teachers—of which there are now more than 700—are taught in great numbers in classrooms across the city by the Fellows who wrote them, by other Fellows, and by teachers who have not yet participated in the Institute’s program.

“I’m sure they [other teachers] will be enthusiastic about the materials and the approach newly available to them. Teaching this year should be more stimulating than ever.”
-Institute Fellow, 1985

FELLOWS’ USE OF THEIR OWN UNITS

Fellows employed their units in different ways in their classrooms, as Table 15 shows. Thirty-nine percent in 1987 said they used units to introduce topics not in the

TABLE 15: WAYS THAT FELLOWS USED THE INSTITUTE UNITS THEY WROTE

	Percent of Fellows
To introduce a topic not in the textbook	39
To expand on a topic in the textbook	39
As the primary resource for teaching the topic of the unit	37
As a substitute for other available material on the topic because the unit presented the topic better	30

textbook, and the same proportion used them to expand on topics that were in the textbook. Thirty-seven percent used them as the primary resource for teaching a topic, with 30 percent adopting them as a substitute for other available material on the topic because the unit presented the topic better.

“The seminar allowed me to shape and form my ideas into a viable unit that I can teach with confidence. The unit will be a new way of teaching for me and of learning for my classes.”

-Institute Fellow, 1990

Fellows designed the units they wrote for a wide range of ability levels. In 1990, a typical year, 80 percent of Fellows said they had designed their units for teaching average students, 50 percent said they had designed them for the most advanced students, and 61 percent said they had designed them for the least advanced students. These figures indicate that there is a substantial body of units which were designed by their authors to be taught to students of more than one ability level, a finding in keeping with Fellows’ and non-Fellows’ conclusions about the units’ adaptability, as discussed below. Of Fellows who said they had not yet been able to use a unit they had written, then, it is not surprising that only 12 percent found that their students’ level of preparation was not what they had anticipated when they wrote the unit.

Of the relatively small proportion of Fellows who had stopped teaching any unit they had themselves prepared in previous years, most explained that they were no longer teaching the subject of the unit (29 percent), that there was no longer enough time in the curriculum (21 percent), or that the unit was designed for a level of students different from the level they were currently teaching (21 percent). That teachers are reassigned to a different subject—in which they may not be formally prepared—reinforces the need for the subject matter preparation and curriculum development that the Institute provides. It also suggests another reason for Fellows’ recurring participation in the Institute, inasmuch as Fellows may wish to return to develop a unit to replace one which they are no longer in a position to use. As the next section will describe, however, the fact that a Fellow may temporarily stop teaching a unit he or she wrote does not mean that its classroom life is interrupted. In fact, a majority of the Institute units in active use are taught by teachers other than their authors, and continue to reach students through their availability from all school libraries and the Institute itself.

FELLOWS’ AND NON-FELLOWS’ USE OF OTHERS’ UNITS

The system-wide surveys provided an opportunity to ask Fellows and non-Fellows about their experience of actually teaching Institute units which others had written. This was particularly important to us because of the Institute’s aim of producing curriculum units which are not only useful to the Fellows who wrote them, but which can be adapted by other teachers for use in their own classrooms.

Table 16 shows the principal sources from which Fellows and non-Fellows learned about units by other Fellows which they taught, adapted by other teachers for use in their own classrooms.

“I’m going to implement my unit shortly after school begins; it’ll be a pleasure to use the knowledge and confidence (of and in a topic I’ve avoided in the past) I’ve gained in seminar. I feel the Institute’s impact is growing in my school—more people are involved in the Institute directly or reading (and using) units.”

-Institute Fellow, 1985

TABLE 16: WHERE TEACHERS LEARNED ABOUT OTHERS' CURRICULUM UNITS THEY USED (PRINCIPAL SOURCES)

	Percent of Fellows	Percent of Non-Fellows
My School Representative	30	54
The teacher who wrote the unit	29	8
An Institute Coordinator	27	31
The Index to Curriculum Units	16	15
A teacher who participated in the seminar in which the unit was written	14	31
The Guide to Curriculum Units	13	8
Another teacher who had used the unit	7	0
The Institute newsletter	6	8

Source: System-wide survey of Fellows and non-Fellows, 1987

For Fellows and non-Fellows, actually reading other teachers' units was the greatest incentive for using them: 20 and 26 percent respectively cited this as a reason for adopting them for their own classrooms. Also influential were the suggestions of the teacher who wrote the unit or of another teacher who had used it. Most of those in both groups obtained the unit they used from an Institute Coordinator or Representative.

Most teachers found Institute units at least potentially self-sufficient: 88 percent of Fellows and 80 percent of non-Fellows thought units written by others contained enough background information to prepare them to teach lessons on the topic, although 59 and 80 percent respectively did additional reading on the topic. Many also decided to seek help before making use of the unit: only half of all Fellows and 29 percent of non-Fellows ultimately sought no additional assistance. When they did seek advice, Fellows were more likely to turn to the unit's author (31 percent compared to 14 percent of non-Fellows), while non-Fellows tended to turn to other teachers (36 percent compared to 7 percent).

As with Fellows' teaching of their own units, Fellows and non-Fellows alike taught others' units to students of all levels: average students (51 and 38 percent respectively), advanced students (29 and 31 percent) and least advanced students (20 and 31 percent). Just as the Institute serves a representative group of all teachers in New Haven, so Institute units are used with many students of all levels.

When teachers reported they had stopped using others' Institute units which they had taught in the past, their explanations varied. Half (50 percent) of Fellows attributed the decision to their no longer teaching the subject of the unit, a cause cited by only 20 percent of non-Fellows. Forty percent of non-Fellows, on the other hand, said the curriculum had changed; no Fellows listed this reason. A possible explanation for this difference is that Fellows may be more accustomed to writing units and then adapting them to new

"I will use my unit not only in my classroom with students but with teachers and staff from the middle schools of New Haven."
-Institute Fellow, 1984

"I feel certain that other teachers will use the unit which I developed as they have in the past. It will certainly enrich the reading and writing assignments of students taking American literature. The unit will be used as part of the American literature program and will take about three or four weeks. Using other units and my own will greatly improve and enrich the English curricula."
-Institute Fellow, 1985

purposes. Other reasons cited less frequently for no longer teaching a unit given by both groups included a lack of time in the curriculum and a change in the age or ability level of students in the teacher’s class.

Fellows and non-Fellows tended to agree on the usefulness of the different components that make up an Institute unit. As Table 17 indicates, everyone in both groups found the objectives somewhat or very useful, and all non-Fellows and 98 percent of Fellows thought the same of the teaching strategies. Fifty-eight percent of Fellows and two thirds (67 percent) of non-Fellows thought that the sample lessons and classroom activities were very useful, and the rest thought they were somewhat useful; approval of the lists of resources for students and teachers and the classroom materials developed or purchased especially for teaching the unit was similarly high. Thirty-six percent of Fellows and 46 percent of non-Fellows found the entire unit very useful; the rest, except for 2 percent of Fellows who didn’t use one, thought it was at least somewhat useful.

TABLE 17: USEFULNESS TO FELLOWS AND NON-FELLOWS OF COMPONENTS OF INSTITUTE UNITS

“I am not only looking forward to using my unit with my own students, but to sharing my unit with my fellow English teachers. At a department meeting I will be able to give a demonstration of the unit and be on hand to share my resources and expertise as the need may arise.”
-Institute Fellow, 1988

	Percent who found each component...							
	very useful		somewhat useful		not at all useful		Did not use	
	F	NF	F	NF	F	NF	F	NF
Sample lessons or classroom activities	58	67	42	33	0	0	0	0
List of resources for teachers	51	50	37	50	8	0	4	0
List of resources for students	47	36	45	55	2	9	6	0
Objectives	49	50	51	51	0	0	0	0
Teaching strategies	43	67	55	33	2	0	0	0
Entire Unit	36	46	62	54	0	0	2	0

Source: System-wide survey of Fellows and non-Fellows, 1987

As Fellows did with their own units, both Fellows and non-Fellows put the Institute units by others that they taught to a variety of uses (see Table 18). Forty-five percent of Fellows and 46 percent of non-Fellows employed them to expand a topic in the textbook, while 21 and 30 percent respectively used them as a substitute for other available material on the topic because the unit presented the topic better. No non-Fellows used units as the primary resource for teaching a topic, though 14 percent of Fellows did; most of the rest of both groups (18 and 23 percent) used them to introduce a topic not in the textbook. Both non-Fellows and Fellows were less likely to use others’ units as the primary resource on a given topic than were Fellows teaching their own; they were similarly less likely to use others’ units to introduce a topic not in the textbook. This is probably attributable to the Fellows’ greater familiarity with their own units, and the breadth of their research in preparing them.

TABLE 18: WAYS THAT FELLOWS AND NON-FELLOWS USED OTHERS' CURRICULUM UNITS

	Percent of Fellows	Percent of Non-Fellows
As the primary resource for teaching the topic of the unit	14	0
To introduce a topic not in the textbook	18	23
To expand on a topic in the textbook	45	46
As a substitute for other available material on the topic because the unit presented the topic better	21	30

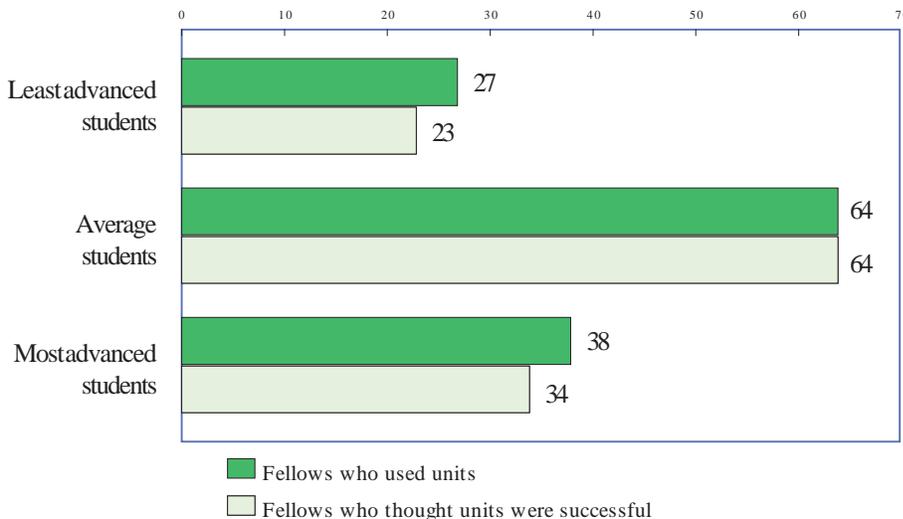
Eighty-six percent of Fellows found the sample lessons in curriculum units appropriate for the students for whom the unit was intended; 10 percent thought the reading level was too high, and 4 percent thought it was too low. Sixty percent of non-Fellows thought the sample lessons were appropriate, and the rest were evenly divided. Most teachers found Institute units adaptable to different grade levels: 84 percent of Fellows agreed with this, as opposed to 60 percent of non-Fellows. Again, the discrepancy may be attributable to the Fellows' greater familiarity with the format of the units.

The fact that so many Fellows and non-Fellows cited this adaptability underscores again the effectiveness of Institute units with the greatest range of students. As a group, Fellows in 1987 were able to use Institute units with students of all abilities, and many used units with students at two or three different levels. Furthermore, as Figure 18 illustrates, almost all of the Fellows who used units with students of any level reported success. The responses to these questions in 1982 were almost identical, and corroborate this evidence for the adaptability and success of Institute units with all students.

“Our department head tries to rotate the courses we teach, but no matter how the rotation goes, most teachers have to have some lower level students. These students are the most difficult to teach and need to be in smaller classes with excellent material. That’s not the situation. They are our largest classes and the material available for them is detrimental—reinforcing of failure. The material I’ve produced at the Institute has been primarily aimed at filling this need, but it automatically provides good material for problems for algebra and geometry classes, where there already is, usually, good material.”

-Institute Fellow, 1988

Figure 18: 1987 Fellows who used Institute units prepared by other teachers and who thought they were successful with students of different ability levels (in percent)



“Preparation of the curriculum unit has been a tremendous learning adventure. As a teacher there are many ideas that seem to be good ones, but time and/or opportunity will not allow you to develop them. Through the Institute and structured guidance, the dreams of doing this become a reality.”
-Institute Fellow, 1990

Fellows and non-Fellows differed on the amount of preparation time they thought Institute units required: half of all non-Fellows (50 percent) thought they required more preparation time to teach than other curriculum materials, as opposed to only 22 percent of Fellows. Again, Fellows’ familiarity with the format and design of the units may account for this discrepancy. More than a third (36 percent) of Fellows found Institute units more enjoyable to teach, and only 4 percent found them less; though only 11 percent of non-Fellows thought they were more enjoyable, all of the rest thought they were equally enjoyable to teach.

Fellows and non-Fellows both compared Institute units favorably with their commercial counterparts (see Table 19). Sixty-four percent of Fellows and 90 percent of non-Fellows thought that Institute units’ objectives compared favorably to those of commercial units, and 82 and 60 percent, respectively, thought the same about teaching strategies. Seventy-eight percent of Fellows and 60 percent of non-Fellows agreed that the units’ sample lessons and classroom activities compared favorably to commercial units, and half or more of both groups expressed the same opinion of the lists of resources for teachers and students. In none of these areas did more than 10 percent think that Institute units compared unfavorably to commercial materials.

TABLE 19: FELLOWS’ AND NON-FELLOWS’ COMPARISON OF INSTITUTE UNITS WITH COMMERCIALLY PREPARED CURRICULUM MATERIALS
 (F=Fellows, NF=non-Fellows)

	Percent who compared units...					
	Unfavorably		No difference		Favorably	
	F	NF	F	NF	F	NF
Objectives	6	10	30	0	64	90
Teaching strategies	2	10	16	30	82	60
Sample lessons or classroom activities	10	10	12	30	78	60
List of resources for teachers	6	10	18	40	76	50
List of resources for students	8	10	26	40	66	50

Nevertheless, both groups had recommendations for how Institute units might be improved: 32 percent of Fellows and 62 percent of non-Fellows wanted to see more sample lessons and classroom activities. Seventeen and 30 percent, respectively, suggested more resources for students; 23 percent of each group suggested more classroom materials for teaching the unit; and 21 and 30 percent respectively expressed a wish for more teaching strategies.

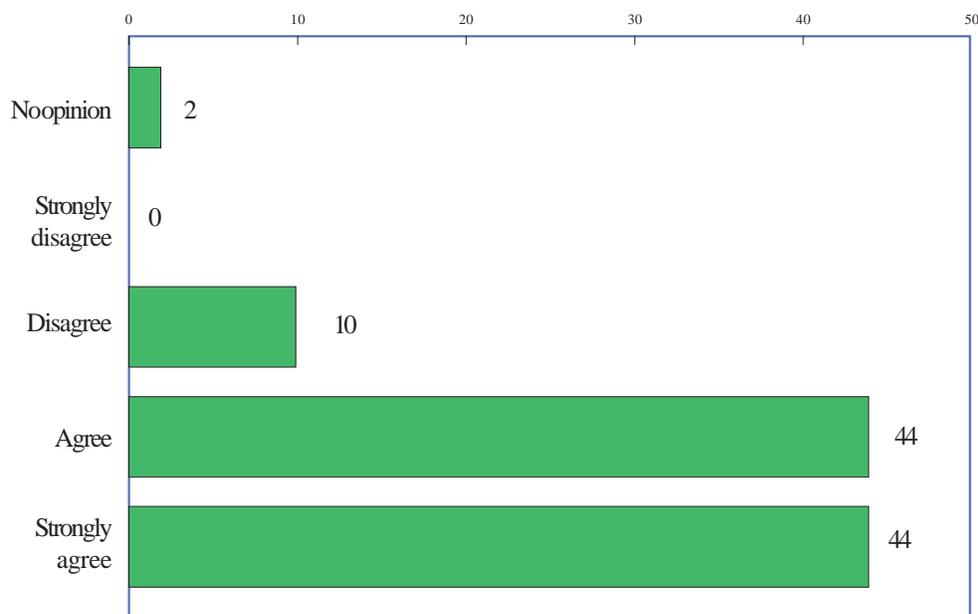
Overall, 42 percent of Fellows and 10 percent of non-Fellows thought that Institute units were superior to their commercially prepared counterparts, and only 4 percent of Fellows—and no non-Fellows—found them inferior. It is not surprising, then, that sixty-two percent of all Fellows agreed that the Teachers Institute has had a large impact on their teaching curriculum, along with 10 percent of non-Fellows; only 15 and 40 percent, respectively, disagreed.

V. FELLOWS' REPORTS OF STUDENT RESPONSE

The ultimate test of the effectiveness of the Institute is, of course, the benefit that it brings to students in the New Haven Public Schools. It is a traditional dilemma of program evaluation that the effects for students, of programs whose direct beneficiaries are the teachers of such students, are diffuse and difficult to measure. As should be amply evident from this report, teachers respond to the Institute in personal ways. While the overwhelming majority report having benefitted in many of the same ways, the reflection of this benefit in their teaching is less easily described. Given this difficulty, the Institute staff chose to ask the Fellows themselves to report on changes in their teaching as a function of their participation in the Institute, and on the response of their students to the curriculum units they, the Fellows, had developed. Fellows and non-Fellows were asked to report the reactions of their students to the units that were developed through Institute participation and to compare (the teachers') perceptions of student response in the cases of classes in which Institute units were and were not taught. Such measures are clearly not without bias. They provide some degree of insight into the effects that teachers perceive for students, but leave unanswered questions of students' own perceptions. Nonetheless, the results are instructive.

The majority of Fellows reported that, as a result of their Institute seminar, they had a higher expectation of their students' ability to learn about the seminar subject. Given well-known findings about the established correlation between teacher expectations and student achievement, this is particularly significant. Figure 19, representing responses from 1990, is typical of the last five years.

Figure 19: Fellows' response to the statement "As a result of my seminar, I have a higher expectation of my students' ability to learn about the seminar subject" (in percent)



"I have found that student interest and enthusiasm are directly proportional to teacher enthusiasm; so, I look forward to a good several weeks of high energy learning in my classes coming solely from the Institute program. I guess this means I'll have to do more Institutes to keep the level high all year."
-Institute Fellow, 1989

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Furthermore, 64 percent of Fellows in 1982 and 65 percent in 1987 agreed that the Teachers Institute had led to an increase in student learning; 13 percent in 1982 and 22 percent in 1987 agreed strongly, and no more than 5 percent disagreed. Twenty-two percent of non-Fellows, asked the same question in 1987, agreed, and only 15 percent disagreed.

Both Fellows and non-Fellows considered students' response to Institute units at least as good or better than student response to commercially prepared curriculum units, as Table 20 shows.

TABLE 20: STUDENT RESPONSE TO INSTITUTE UNITS

(F=percent of Fellows, NF=percent of non-Fellows)

	<u>1982</u>						<u>1987</u>					
	<u>Higher</u>		<u>About the same</u>		<u>Lower</u>		<u>Higher</u>		<u>About the same</u>		<u>Lower</u>	
	F	NF	F	NF	F	NF	F	NF	F	NF	F	NF
Student attention in class to Teachers Institute units has been...	29	32	71	68	0	0	36	20	64	80	0	0
Student interest for Teachers Institute units has been...	42	33	58	67	0	0	44	30	56	70	0	0
Student motivation for Teachers Institute units has been...	26	20	73	80	0	0	46	10	54	90	0	0
Student mastery of Teachers Institute units has been...	32	24	68	77	0	0	40	20	60	80	0	0

Source: 1982 and 1987 system-wide surveys

Student attention was one area where this improvement can be seen: 29 percent of Fellows in 1982 and over a third (36 percent) in 1987 thought that attention in class to Institute units had been higher, and 32 and 29 percent of non-Fellows, respectively, agreed. Well over a third (42 and 44 percent) of Fellows in each year thought that student interest in Teachers Institute units had also been higher, and 26 and 46 percent thought that their motivation for Institute units had been higher as well. In 1982 33 percent of non-Fellows agreed that interest had increased, as did 30 percent in 1987; 20 and 10 percent thought the same of student motivation. Student mastery was also cited: a third or more (32 and 40 percent) of Fellows reported that mastery of Institute units was higher, and 20 and 24 percent of non-Fellows agreed. Finally, in neither of the years that this question was asked did any respondent—Fellow or non-Fellow—say that student response to Institute units was lower than their response to commercially prepared curricular materials.

“Don’t be afraid to put issues on a higher level, because sooner or later these statements will make sense, and also the students should be exposed to a higher level of thought.”
-Institute Fellow, 1989

Figure 20 reports Fellows' answers to questions about their students' overall response to curriculum units used in their classroom.

Figure 20A; Fellows' response to the statement, "As a result of my teaching of my curriculum units, students exhibit greater mastery of the subject I teach." (in percent)

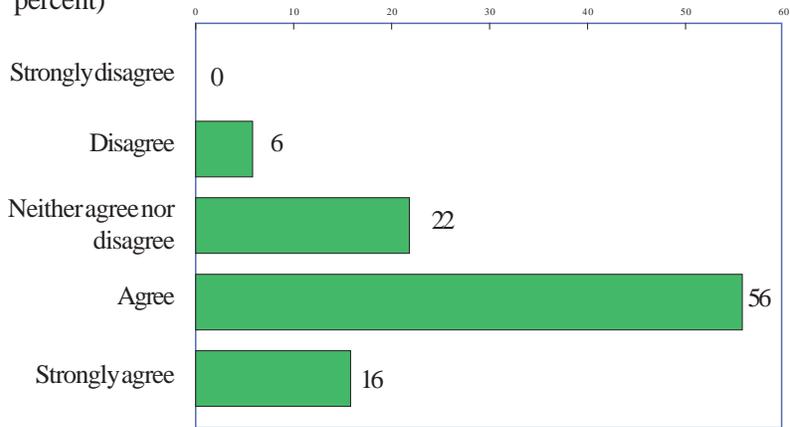


Figure 20B: Fellows' response to the statement, "As a result of my teaching of my curriculum units, students see me as more interested in what I am teaching." (in percent)

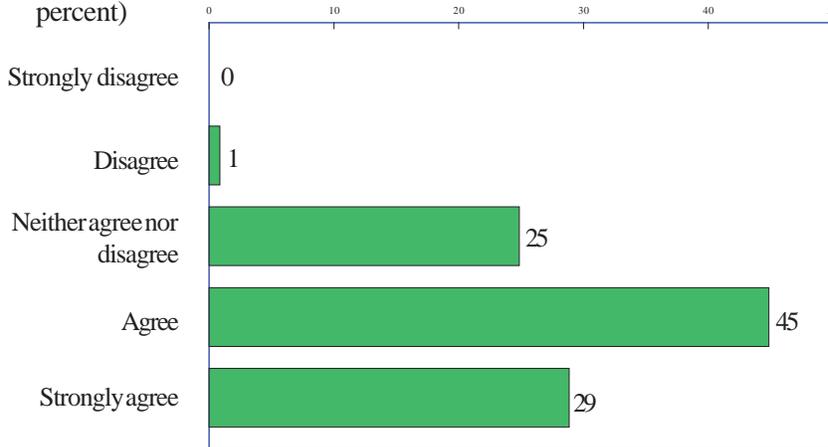
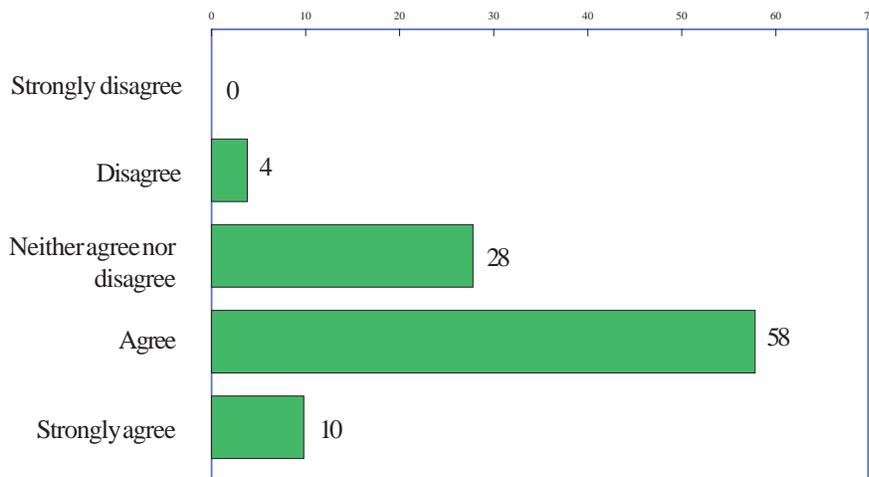


Figure 20C: Fellows' response to the statement, "As a result of my teaching of my curriculum units, students view the class more positively." (in percent)



"After teaching for a number of years, I am always looking for new ways to get things done as much for myself as for the students in my classes. The excitement I feel about my unit this year will surely be felt by my students as well. By bringing together different types of readings, and then developing different modes of writing for self expression, my students will gain confidence in their ability to write more comfortably in their own voice."

-Institute Fellow, 1990

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These charts indicate that a substantial majority of Fellows agree that students exhibit a greater mastery of the subject, are more interested in what is being taught, and view the class more positively when the Fellow is teaching an Institute curriculum unit. Sixty-two percent also agreed that students saw them as more caring when they were teaching an Institute unit, and 85 percent believed that, as a result of the unit, students understood that their teacher was continuing to learn. No more than three percent of Fellows disagreed with the last two claims.

SOME CONCLUDING ISSUES

TEACHER RETENTION AND CONTINUING PARTICIPATION IN THE INSTITUTE

A major goal of the Institute has always been to enhance the retention of teachers, especially good and committed teachers, in the New Haven Public Schools. To this end, we have continually tracked retention rates among Fellows.

In 1990 the Institute updated its ongoing study of Fellows who have remained in teaching in New Haven. The study shows that of the 309 individual teachers who have completed the program successfully at least once between 1978 and 1990, two-thirds (203) are still teaching in a New Haven Public School. An additional 13 individuals (5 percent) have assumed positions in the New Haven Public Schools administration, and one Fellow is on leave from secondary teaching. Thus 70 percent of all Fellows currently work in the New Haven Public Schools. Table 21 shows the proportion of current New Haven school teachers, by subject and school level, who have participated as Fellows.

TABLE 21: INSTITUTE FELLOWS AS A PERCENTAGE OF ELIGIBLE NEW HAVEN TEACHERS*

	Middle Schools	High Schools
English	53	37
History	45	53
Foreign Language	26	19
Arts	59	33
Math	15	25
Science	36	25
Total	43	37

*Does not include elementary school teachers to whom the Institute opened its program first in 1990.

“I will go back to school feeling more organized and confident because I will have something to use in my teaching that I developed myself and that has been written down in a structured manner. I had time to reflect on what I wanted to do, then the time to write it out.”
-Institute Fellow, 1990

As the table also shows, a similar proportion of middle school teachers (43 percent) and high school teachers (37 percent) have participated in the Institute. Overall, 40 percent of all New Haven middle and high school teachers of the humanities and the sciences have completed the Institute successfully at least once.

“I feel I have tackled a difficult task and have done it well. I will probably take a break for a year or so before applying for the Institute again, but I would definitely do it again.”
-Institute Fellow, 1987

With respect to the number of years Fellows still teaching in New Haven have taken part in the Institute, 40 percent have participated once, 39 percent have taken part either two or three times, and a few other Fellows have participated between four and twelve times. Thus, while the Institute has served a significant proportion of all eligible New Haven teachers, and while it has become a regular part of the professional lives of some teachers, there are many teachers who have yet to participate and others who we hope will participate on a more recurring basis.

On the other hand, of Institute Fellows who have left the New Haven school system, 80 percent completed the program only once or twice, and only six individuals (6 percent) completed the program four or more times. Thus, as an indication of its cumulative influence in the New Haven school system, and as potential evidence of its effects in retaining teachers in New Haven, the Institute has worked in the most sustained way with those individuals who have chosen to remain in teaching in New Haven schools.

In our surveys we asked Fellows and non-Fellows a series of questions about their plans to remain in teaching and their satisfaction with the profession. Table 22 shows Fellows’ and non-Fellows’ responses to the question of whether, in view of their present knowledge, they would still decide to teach if they had the choice of professions to make over again.

“In my seven years of participation I have never been disappointed. The process of the Institute helps me to turn out a good product on paper and a better product in my classroom.”
-Institute Fellow, 1984

TABLE 22: TEACHERS WHO WOULD CHOOSE TEACHING IF THEY COULD START THEIR CAREERS OVER AGAIN

	Percent of Fellows	Percent of Non-Fellows	Percent of Teachers Nationally*
Certainly would become a teacher	23	24	23
Probably would become a teacher	16	16	26
Chances about even for and against	27	23	20
Probably would not become a teacher	22	24	22
Certainly would not become a teacher	13	13	9

*From the National Education Association’s 1987 report on “The Status of the American Public School Teacher.”

Fellows’ and non-Fellows’ responses to this question were almost identical, with 39 and 40 percent indicating that they probably or certainly would choose to become teachers again, and an almost equal number—35 and 37 percent—saying they probably or certainly would not. In the NEA survey cited above, 49 percent said they would choose

to become a teacher, and 31 percent said they probably or certainly would not. We also asked Fellows to tell us in what occupation they would like to be working in ten years. Their responses are shown in Table 23.

TABLE 23: OCCUPATIONS IN WHICH FELLOWS AND NON-FELLOWS WANT TO BE WORKING IN TEN YEARS

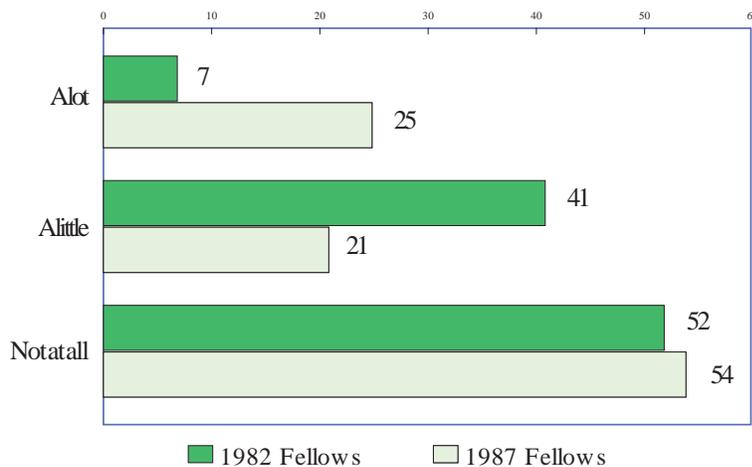
	Percent of Fellows	Percent of Non-Fellows
Teaching in the New Haven Schools	32	36
Teaching in a different school system	10	10
Working as a school administrator in New Haven	17	9
Working as a school administrator in another school system	6	4
Working in a different profession altogether	35	41

Responding to a related question, 40 percent of Fellows and 37 percent of non-Fellows said they intended to remain in the teaching profession until they are eligible for retirement. Seventeen percent of each group planned to stay in teaching at least five to ten years longer, while 33 and 28 percent respectively expected to teach for at least another one to five years. One percent of Fellows and 2 percent of non-Fellows planned to leave teaching at the end of the 1986-1987 school year, when the survey was conducted. Eight percent of Fellows and 16 percent of non-Fellows said they would teach until they were required to retire.

Although there is no statistically significant difference between Fellows and non-Fellows on these questions about their plans to stay in teaching, when asked directly, many Fellows have said that their participation in the Institute had contributed to their decision to continue teaching in the New Haven Public Schools. Figure 21 illustrates their response.

[The Institute] was a rewarding experience, especially the sharing of ideas and the reading for the seminar. I found intellectual stimulation that I do not get a chance to enjoy during the school year because of the isolation found working in a middle school. There seems never to be enough time. There are always meetings after meetings called by the administration but they are not teacher oriented.”
-Institute Fellow, 1989

Figure 21: Degree to which Fellows report that their participation in the Institute has influenced their decision to continue teaching in the New Haven Public Schools



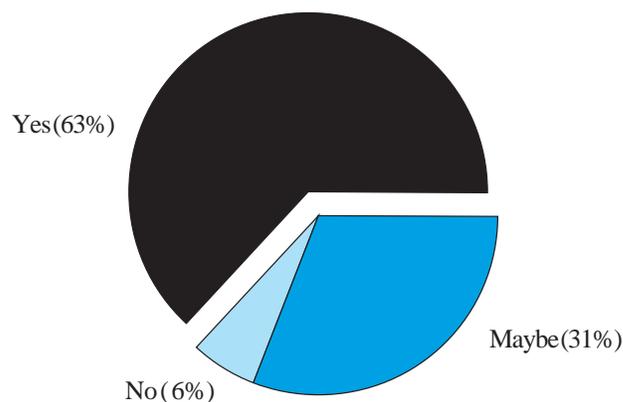
Forty-eight percent of Fellows in 1982 and 41 percent in 1987 said that their work at the Institute had influenced their decision to continue teaching in New Haven; significantly, the percentage who said the Institute had influenced them “a lot” more than tripled between 1982 and 1987, going from 7 percent to 23 percent.

It is therefore encouraging that 14 percent of non-Fellows in 1987 said they would definitely participate in the Institute in the future, and a further 40 percent said they might. This degree of interest is indicative of the number of teachers in New Haven who might benefit from and would also consider participating in the Institute, but have not yet done so.

Fellows, too, were asked at the completion of each Institute session about their own plans for participating in the future. At the conclusion of the Institute’s 1990 session, almost two thirds of the Fellows who had participated (63 percent) said that they definitely intended to return to the Institute in future years, as Figure 22 shows. A further 31 percent said that they would consider returning; only 6 percent indicated that they would not. Forty-two percent of new Fellows indicated that they would definitely return, and the year before a full 72 percent of first-time participants said they would. Of those in the group as a whole who were not certain or expected not to participate again, forty-six percent said a higher stipend would increase the likelihood of their coming back, 38 percent said it would not, and 17 percent were unsure. Fifty-eight percent said they would be more likely to return if the recognition they received from the school system for their participation were greater, and 46 percent said they might be persuaded if the Institute’s schedule began earlier. Asked to give the reasons why they would not or might not return, the largest proportion (40 percent) cited family or personal plans. Others mentioned full-time summer employment (10 percent), graduate school coursework (15 percent) or the amount of time demanded by participation as explanations for not coming back. One Fellow claimed not to have benefitted from participating—the only person to make this statement during the entire five years that the survey was administered.

“I have thoroughly enjoyed every minute of my seminar and research. This is my first year as a Fellow, and I do hope it is not my last.”
-Institute Fellow, 1984

Figure 22: 1990 Fellows' plans to participate in Institute seminars in future years



ACKNOWLEDGMENTS

During the past ten years numerous individuals and funders have assisted in the development of the Institute's approach to evaluation generally and with specific questionnaires, as well as in the analysis and interpretation of data from surveys conducted since 1982. Mitchell Katz helped to create the Institute's first teacher surveys and, working in 1981-1982, also analyzed the results and helped to prepare reports. Many of the items from those early surveys were retained for use in later questionnaires, between 1986 and 1990. Peter J. Casarella also contributed survey items related to his research on Institute curriculum units conducted in 1985-1986.

Since 1985 William Kessen has helped guide the Institute's approach to evaluation, the design of the surveys whose results are reported here, and the interpretation of results. Between 1985 and 1987 Elizabeth Leavell assisted in questionnaire development and recorded in a detailed way the relationship among questions included in the various surveys. From 1987 to the present Marion Kessen has had major responsibility for managing and analyzing the data from all the surveys the Institute administered between 1982 and 1990. Her painstaking and careful work has been assisted by several Yale undergraduates: Carla Eckhardt, Frank Roschitz, and Justin Scott worked on the organization and presentation of data; and Frank Roschitz assisted as well in data analysis.

Since 1986 Gita Z. Wilder has provided invaluable assistance in helping the Institute to formulate its overall approach to evaluation and in advising the development of particular surveys and reports. She reviewed several drafts of the present report and made suggestions which are incorporated here. With respect to the present report, Jeffrey Dolvin prepared an early draft of lengthy material. Arthur Chung checked data in that early draft and prepared the graphs and charts which are included in these pages. Erica C. Brossard laid out pages of early drafts of the Progress Report, assisted by Josh Wang. Margaret Davey completed the layout of the present version.

The Institute's earliest work in evaluation was supported by the Connecticut Humanities Council and the National Endowment for the Humanities. A three-year grant from the Rockefeller Foundation allowed the Institute to develop the surveys which were administered between 1986 and 1990. In 1987 a grant from the College Board permitted the Institute to intensify its work in analyzing and interpreting data from these surveys. The Institute's work in evaluation has been significantly assisted also by support from the Ford Foundation and, most recently, the DeWitt Wallace-Reader's Digest Fund.

At every important turn—from frequent examinations of the Institute's approach in evaluation, to the formulation of specific items in questionnaires, to the interpretation of survey results—and at many points in between, the New Haven teachers who have served in leadership positions in the Institute since 1981 have provided indispensable assistance to this work in evaluation. That is, they were participants at many stages in a collaborative process leading to the present report. More than thirty-eight individual teachers contributed to the Institute's evaluation in these ways while they served as Institute Coordinators, or in other capacities, during the past decade.