

Annual Report

2007

Yale-New Haven Teachers Institute®

Annual Report

2007

The Yale-New Haven Teachers Institute® is an educational partnership between Yale University and the New Haven Public Schools designed to strengthen teaching and learning in local schools and, by example, in schools across the country. Through the Institute, Yale faculty members and school teachers work together in a collegial relationship. The Institute is also an interschool and interdisciplinary forum for teachers to collaborate on new curricula. Each participating teacher becomes an Institute Fellow and prepares a curriculum unit to be taught the following year. Teachers have primary responsibility for identifying the subjects the Institute addresses.

Since its inception in 1978, the Institute has been recognized repeatedly as a pioneering and successful model of university school collaboration; in 1990 it became the first program of its type to be permanently established as a function of a university. In 1998 the Institute launched a National Demonstration Project to show that the approach it had taken for twenty years in New Haven could be tailored to establish similar university-school partnerships under different circumstances in other cities. Based on the success of that Project, in 2004 it announced the Yale National Initiative to strengthen teaching in public schools, a long-term endeavor to establish exemplary Teachers Institutes in states throughout the country.

For information about the Institute model, the National Initiative, or opportunities to support the Institute's Endowment, please contact:

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HIGHLIGHTS OF THE REPORT

Introduction

During 2007 the Yale-New Haven Teachers Institute[®] continued its New Haven program for the thirtieth year and pursued for the third year the Yale National Initiative to strengthen teaching in public schools, a long-term endeavor to establish as many as 45 new Teachers Institutes throughout the United States.

From its beginning in 1978, the overall purpose of the Yale-New Haven Teachers Institute has been to strengthen teaching and learning in local schools and, by example, in schools across the country. The Institute places equal emphasis on teachers' increasing their knowledge of a subject and on their developing teaching strategies that will be effective with their students. New Haven represents a microcosm of urban public education in the United States. Eighty-six percent of the students in the New Haven Public Schools are African American or Hispanic. More than seventy percent of students are eligible for a free or reduced-price lunch.

At the core of the program is a series of seminars on subjects in the humanities and the sciences. Topics are suggested by the teachers based on Eighty-six percent of the students in the New Haven Public Schools are African American or Hispanic. More than seventy percent of students are eligible for a free or reducedprice lunch.

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Yale faculty contribute their knowledge of a subject, while the New Haven teachers contribute their expertise in pedagogy.

Teachers are treated as colleagues throughout the seminar process. what they think could enrich their classroom instruction. In the seminars, Yale faculty contribute their knowledge of a subject, while the New Haven teachers contribute their expertise in elementary and secondary school pedagogy, their understanding of the students they teach, and their grasp of what works in the crucible of the classroom. Successful completion of a seminar requires that, with guidance from the Yale faculty member, the teachers each write a curriculum unit to be used in their own classroom and to be shared with others. The units are disseminated throughout New Haven schools and, in certain schools, through Institute Centers for Curriculum and Professional Development. Both print and electronic publication make the units available for use or adaptation by other teachers in New Haven, and by teachers, students, and the wider public throughout this nation and indeed the world.

Teachers are treated as colleagues throughout the seminar process. Unlike conventional university or professional development courses, Institute seminars involve at their very center an exchange of ideas among teachers and Yale faculty members. This is noteworthy since the teachers admitted to seminars are not a highly selective group, but rather a cross-section of teachers in the system, most of whom, like their urban counterparts across the country, did not major in one or more of the subjects they teach. The Institute's approach assumes that urban public school teachers can engage in serious study of the field and can devise appropriate and effective curricula based on this study.

Through 2007, the Yale-New Haven Teachers Institute has offered 181 different seminars to 641 individual teachers, many of whom have participated for more than one year. (Please see Appendix for a list of the Fellows.) The seminars, meeting over a five-month period, combine the reading and discussion of selected texts (and often the study of selected objects or aspects of the local environment) with the writing of the curriculum units. Thus far, the teachers have created 1644 curriculum units. Over the years, a total of 96 Yale faculty members have participated in the Institute by giving one or more seminars. (Please see Appendix.) Of them, 68 have also given talks. Forty-six other Yale faculty members have also given talks. About half of these 142 participants are current or recently retired members of the faculty.

The Institute's twentieth year, 1997, had brought to a climax a period of intensive development of the local program. That had included placing all Institute resources online, providing computer assistance to the Fellows, correlating Institute-developed curriculum units with new school-district academic standards, establishing Institute Centers for Curriculum and Professional Development in the schools, and establishing summer Academies for New Haven students. In that year, while continuing to deepen its work in New Haven, the Institute began a major effort to demonstrate the efficacy of its approach in other cities across the country.

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This effort involved in 1998 the planning stage of a National Demonstration Project. In 1999 partnerships were established between colleges or universities and school districts at four sites that planned to tailor the Institute's approach to local needs and resources. Implementation grants were awarded to four new Teachers Institutes — including Pittsburgh (what is now Chatham University as well as Carnegie Mellon University) and Houston (University of Houston). These grants enabled them to work with the Yale-New Haven Teachers Institute for an initial period of three years, from 1999 through 2001.

In 2002-03 the Institute's work on the national level was notably assisted by an extension of support for the National Demonstration Project which enabled the two-year Preparation Phase of the Yale National Initiative to be brought to completion. The Preparation Phase included Research and Planning Grants for the Pittsburgh Teachers Institute and the Houston Teachers Institute, which have significantly contributed to the evaluation of the Teachers Institute approach. The Preparation Phase enabled the Yale-New Haven Teachers Institute to collate and analyze data from the questionnaires and surveys conducted during the National Demonstration Project, establish a Web site for the Yale National Initiative, and prepare the "Understandings" and "Procedures" that serve as the basis for membership in a new League of Teachers Institutes. The Preparation Phase made possible a summary evaluation of the National Demonstration Project by Rogers M. Smith and other researchers at the University of Pennsylvania, and culminated in 2004 with the announcement of the Yale National Initiative to strengthen teaching in public schools in states throughout the country.

In 2007 eleven cities or counties in ten states participated in the National Initiative. These included four cities that already had Teacher Institutes — New Haven, Houston, Pittsburgh, and most recently, Philadelphia — and seven cities that the Initiative had targeted for their potential to establish a new Teachers Institute. Superintendents of public schools in these cities nominated teachers to become Yale National Fellows who would participate in national seminars, led by faculty members experienced in the Institute approach. In this way, teachers might learn first-hand about that approach and might become leaders in exploring the creation of a Teachers Institute for their home community. Although they meet on a compressed schedule, the national seminars have the same expectations as New Haven Institute seminars. The National Initiative conducts an annual series of activities: an Organizational Session of the seminars that National Fellows attend each May; an Intensive Session of seminars for two weeks each July, which Institute directors and college and university faculty members from participating cities also attend; and an Annual Conference each October where school officials learn more about the Institute approach from National Fellows, national seminar leaders, and other faculty.

In 2007 eleven cities or counties in ten states participated in the National Initiative.

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The present report focuses on the activity undertaken by the Yale-New Haven Teachers Institute in 2007. Extensive material on the National Initiative is available on the Initiative Web site.

The Program in New Haven

This section of the report covers the offerings, organization, and operation of the Institute's 2007 program for the New Haven teachers who participated as Fellows. It draws extensively upon the evaluations written by Fellows and seminar leaders at the conclusion of their participation. Here the report documents teacher interest in Institute seminars, as well as the content of the seminars that have been offered, the application and admissions process, the participants' experience in the program, and the preparation for 2008 offerings. It describes the maintaining of Institute Centers for Curriculum and Professional Development in several schools and the continuing involvement of new teachers as Fellows. It outlines the process of local documentation and evaluation.

We hope that this section of the report will be of interest to all those who assist in supporting, maintaining, and expanding the program in New Haven. We hope that its account of our local procedures may continue to prove useful to those who have established new Teachers Institutes, and to those in other communities who are contemplating the establishment of such Institutes.

The New Haven and National Web Sites

The Web site of the Yale-New Haven Teachers Institute makes available electronic versions of the Institute's publications — including the volumes of curriculum units, reports and evaluations, essays and other materials concerning the Institute's work since 1978. (The address is http://www.yale.edu/ynhti/.) The Web site is valuable for New Haven teachers; it played a key role during the National Demonstration Project; and that role has grown as the Yale National Initiative proceeds. The Web location has been advertised prominently in the periodical *On Common Ground*®, which contains articles regarding school-university partnerships and reaches a national audience. We estimate that from its inauguration in June 1998 through December 2007, this Web site has received nearly fifty million "hits." Of these, some seven million occurred during 2007, when approximately one million different persons visited the site.

The Web site of the Yale National Initiative, (the address for which is http://teachers.yale.edu) presents the curriculum units written by the Yale National Fellows who participated each year in national seminars; publications and video programs on the Teachers Institute approach; and news and other information about the Initiative and the League of Teachers Institutes. From the national Web site, teachers and others may search and comment on the curriculum units written in national, as well as local, Teachers Institute seminars.

This Web site has received nearly fifty million "hits."

On Common Ground

On Common Ground[®] is published periodically by the Yale-New Haven Teachers Institute. It is concerned with the development of teachers and of their curricula through school-university partnerships. Its title, which derives from that of the first book on the Institute's work, Teaching in America: The *Common Ground*, is intended to suggest that university and school teachers across the country have a strong mutual interest in the improvement of teaching and learning in schools. The periodical focuses on the issues that have arisen and continue to arise in university-school partnerships of many kinds throughout the United States. The circulation of the periodical is over 15,000 nationwide and includes the Chief State School Officers; superintendents of school districts enrolling 5,000 or more students; all college and university presidents and chancellors and chief academic officers; deans and directors of education, continuing education, and graduate programs at four-year institutions; directors of community services and governmental relations at four-year institutions; heads of many corporations, foundations, and professional organizations involved in education reform; education policy makers at both the federal and state levels; members of the print and broadcast media who cover education; and a growing list of individuals who have asked to receive it.

Each number of *On Common Ground* has a topical focus, developed in one or more lead essays, and also deals more briefly with other matters of current interest. Number 11, published in 2007, reported on "The Yale National Initiative: Making Connections." This number contained articles by faculty about seminars they have led and by Fellows about student response to curriculum units they have written, and also included accounts of the progress being made in developing Teachers Institutes in certain cities.

Teachers Institute Legislation

In 2007 Connecticut Senators Joseph Lieberman and Christopher Dodd and Representatives Rosa DeLauro and Joseph Courtney introduced the Teacher Professional Development Institutes Act. Similar legislation had been introduced in the prior, 109th Congress and had received the unanimous, bipartisan support of the Connecticut delegation. These latest bills, S. 2212 and H.R. 3209, would authorize \$30 million to be expended over 5 years to provide for the establishment of as many as 8 Teachers Institutes each year, so that by the fifth year there would be an exemplary Institute in as many as 40 states. Passage of this legislation would provide a tremendous boost to the Yale National Initiative, which aspires to establish an exemplary Teachers Institute in most states. These Institutes would enable state and local education agencies to learn from local experience about this tested approach as they reformulate their policies and practices for teacher professional development. On Common Ground is concerned with the development of teachers and of their curricula through school-university partnerships.

Passage of this legislation would provide a tremendous boost to the Yale National Initiative.

THE PROGRAM IN NEW HAVEN

The Seminars and Curriculum Units

From its inception, a tenet of the Institute's approach has been to determine its offerings annually in response to the needs for further preparation and curriculum development that the teachers themselves identify. In 2007 this process, as described later in the report, resulted in the presentation of five seminars, two in the humanities and three in the sciences, technology and mathematics. Teachers' participation in these seminars was greatly assisted by the annual contribution from the New Haven Public Schools.

With support also from endowment income the Institute offered two seminars in the humanities:

> "American Voices: Listening to Fiction, Poetry, and Prose," led by Langdon Hammer, Professor of English

> > "Voyages in World History before 1500," led by Valerie Hansen, Professor of History

With support from a private foundation, the National Science Foundation, and the Howard Hughes Medical Institute, the Institute offered three seminars in the sciences:

> "Frontiers of Astronomy," led by Sarbani Basu, Professor of Astronomy

"The Science of Natural Disasters," led by David Bercovici, Professor of Geophysics

"Health and the Human Machine," led by W. Mark Saltzman, Goizueta Foundation Professor of Chemical and Biomedical Engineering

The following overview of the work in the seminars is based on the descriptions circulated in advance by the seminar leaders, the introductions they wrote to the volume of curriculum units produced in their seminar, and the curriculum units themselves.

American Voices: Listening to Fiction, Poetry, and Prose

This seminar emphasized that young people learning to read literature need to learn to hear voices. American literature arose in a culture of oral performance: sermons, speeches, debates, and drama were crucial forms of expression in early America. American writers have often imagined themselves not as writing, but as speaking, to their readers. Responding to American literature, we respond to its history of individual voices. A tenet of the Institute's approach has been to determine its offerings in response to the needs teachers themselves identify.

The seminar explored American literature as the creation of particular speakers in multiple forms: fiction, poetry, and prose. As envisioned by the seminar leader, the seminar explored American literature as the creation of particular speakers in multiple forms: fiction, poetry, and prose. Participants studied and discussed some of the most famous and arresting American voices while exploring the rhetorical techniques by which these voices were created, and through which they go on speaking. For voice in writing is always a special kind of illusion through which an author's words, although silent on the page, enter and resound in the reader's mind, full of feeling and implication, conveying multiple kinds of information, and rich in meaning.

Readings and discussion included some classics of American literature: sermons and speeches by Jonathan Edwards, Patrick Henry, Abraham Lincoln, Sojourner Truth, and Martin Luther King, Jr.; poems by Walt Whitman and Emily Dickinson, Robert Frost (and Frost's letters on what he calls "the sound of sense" as well as his lecture "The Imagining Ear") and Langston Hughes; and Mark Twain's *Huckleberry Finn*. The seminar addressed the ways in which voice is constructed on the page, and the particular expressive functions of sound in writing.

Twain's novel introduced the question of dialect. In response to the ensuing discussion, participants considered an essay called "Teaching the N-Word" by Emily Bernard, a professor of African American literature at the University of Vermont, which speaks about the author's experience discussing the word in her college classroom and some of the meaning the word has had in her life. The seminar read newspaper articles and personal essays dealing with the question of black English, including materials relating to the public controversy over the status of Ebonics in the Oakland, California, school system in the 1990s. The group read James Baldwin's essay "If Black English Isn't a Language . . ." and selections from Alice Walker's novel *The Color Purple and Ralph Ellison's novel Invisible Man*. Ellison's novel, like Twain's, presents a view of American literature as multi-voiced, mixing multiple forms of speech and tradition.

Many of the Fellows teach students whose first language is Spanish, and the seminar devoted two weeks to Latino/a authors who speak of the experience of learning English, and who reflect on the situation of Spanish speakers in a nation dominated by English. Selections included essays by and interviews with Richard Rodriguez, and essays and fiction by Julia Alvarez, Gloria Anzaldua, and Sandra Cisneros. In an effort to find a contemporary voice that might speak to young people today with the force and relevance many of us remember from J. D. Salinger's Holden Caulfield's first-person in *The Catcher in the Rye*, participants pooled suggestions and voted to read together *Push* by Sapphire. Then, in the final session, each Fellow presented a text orally — some suggesting models of how reading aloud might be used in the classroom, others simply sharing writing that was compelling to them.

The seminar leader had assumed, in designing this seminar, that a focus on voice would be a useful way into the study of literature for students of all levels. Students are frequently intimidated by reading and writing assignments.

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In school, they learn to use language in unfamiliar ways; in a sense, they are learning another language, or, more precisely, they are learning how to use language in unfamiliar ways. The challenge is especially acute for students whose first language is not English. But most students already understand and have access to the power of language through oral experience, and the hope was to devise ways to draw on this strength as we help students come to writing. Students are more often than not resourceful and expressive speakers and shrewd listeners, well acquainted with the pleasure and power of speech from their daily interactions with each other and their families, and from their experience of music, film, and other media. The seminar aimed to develop conceptual and practical strategies for drawing on students' existing talents by using their oral skills to establish a foundation for their work as writers and readers.

The Fellows took up this project in what the seminar leader called "a wonderful array of ways" in a series of curriculum units designed for the full spectrum of the public school system in New Haven. Sean Griffin uses "Open Mic Fridays" in his unit to get his eighth-graders talking about themselves; this practice is modeled on Nikki Grimes's novel, *Bronx Masquerade*, which his students read and imitate eventually by producing their own writing. Many of the units focus on the process by which students come to write about themselves and their world, in response to selected readings. This is the project of Dana Buckmir's unit, designed for tenth-graders, which is centered on prose memoir and poetry. Judy Katz's unit for creative writing and language arts classes has similar goals, while focusing on poetry and poetic technique, and using a "Master/Apprentice" model which encourages students to find their own voices by imitating and responding to powerful literature, from Whitman to Def Poetry. Sandy Friday



The seminar on "American Voices: Listening to Fiction, Poetry, and Prose." (Clockwise from left: Fellows Judith J. Katz, Dina Secchiaroli, Maria Cardalliaguet Gómez-Málaga, Sandra K. Friday, and Dana Buckmir; seminar leader Langdon L. Hammer; and Fellows Ekaterina Barkhatova and Melissa Dailey.)

The seminar aimed to develop strategies for drawing on students' existing talents to establish a foundation for their work as writers and readers.

does something similar, but in a classroom setting where students have more basic literacy skills; she introduces them to a broad range of exciting texts, mostly poems and short stories, which model the project of coming to writing and enhanced self-expression in which they are themselves engaged.

In her unit designed for an honors class of high school juniors, Melissa Dailey encourages students to become aware of the demands and opportunities of their own literary education. Dina Secchiaroli's students are in many cases reading far below their grade level, and may have experienced frustration or unhappiness in school previously, a challenge she approaches by taking introspection and liberation as her theme. Carlos Lawrence's unit is designed for special education students in eighth grade, where he aims to create a curriculum that can be modified to address students working at very different levels of literacy and with a range of individual needs. Matthew Cacopardo, working with special needs students in high school, uses examples from public life to help students understand how they can use their voices to solve problems in their daily life as well as on the level of the community and nation. Susan LaForest has created a unit for bilingual students in grades four through six to explore various regions and cultures of the United States, in an effort to acquaint students with the nation, its culture, and its history, with an emphasis on the immigrant experience. Ekaterina Barkhatova proposes a curriculum for Spanish-speaking elementary school students learning English that does not ask them to forget or put aside the Spanish language and their Hispanic culture but instead invites them to build on these resources and indeed to reflect on and deepen their knowledge of them by reading bilingual Latino/a authors. Maria Cardalliaguet Gómez-Málaga, teaching Spanish to high school students, outlines a unit that introduces students of Spanish as a foreign language to the beauty and cultural richness of the language through a study of multiple expressive forms, including poetry and music primarily.

The seminar leader concluded,

The idea of voice — as a key property of written texts, of music and other cultural forms, and above all of the students' speech and experience — holds together this remarkably diverse but unified array of curriculum units, all addressed to a student body that is diverse in its social make-up and spectrum of individual needs.

Voyages in World History before 1500

This seminar tried to make world history "more digestible," as the seminar leader said, by focusing on a specific traveler rather than attempting to cover everything about a given society. Participants embarked on over ten different journeys — starting with Kennewick man's walk to the New World some 8400 years ago and ending with a Muslim traveler who covered more ground than anyone else before 1500 (75,000 miles). In between, they traveled to Mesopotamia with Gilgamesh, to the New World with the Vikings, to China with a woman poet, and to the Mongols during the time of Chinggis Khan. The narratives of these travelers provided a glimpse of both their home societies and the new civilizations they visited.

This seminar embarked on over ten different journeys.

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Five Fellows chose to focus on an individual traveler or society or on two travelers. Kristen Grandfield's unit "Teaching the *Epic of Gilgamesh*" takes the hero of the epic poem as the focus of her high school language arts unit. Barbara Natale's unit offers elementary-grade teachers an interdisciplinary introduction to Chinese civilization, including the writing system, the terracot-ta warriors, and Chinese numbers (which are also used in the Japanese game of Sudoku), while emphasizing fun reading. Sarah Black's unit employs high school students' interest in film to teach them how to read and analyze primary sources, both from the Crusaders' point of view and from that of their Islamic opponents. Justin Boucher's focuses on a single Islamic traveler, Ibn Jubayr, which allows high school history students to learn about the broad tradition of Islam through this traveler's extremely detailed account of his pilgrimage to Mecca, which has been fully translated into English. Niki LaMontagne's unit is designed to teach students in high school about relationships by studying two relationships far from their own time and place.

Six members of the seminar were drawn to the last group of travelers the group encountered, including Ibn Battuta (1304-1368/69), who covered 75,000 miles in Afro-Eurasia in the 1300s. Ibn Battuta's account of his travels is available in translation and makes fascinating reading; in addition Ross Dunn has written a book about his travels that is required reading for anyone interested in world history. Ibn Battuta is also the subject of numerous children's books and Web sites.

Christine Elmore's unit, "An African Pilgrim-King and a World Traveler: Mansa Musa and Ibn Battuta," aims to strengthen elementary-grade students' reading skills by focusing on two Africans; her unit ends with a play students can perform to improve fluency in reading. Paula Ranciato's unit seeks to broaden her



The seminar on "Voyages in World History before 1500." (Clockwise from left: Seminar leader Valerie Hansen; and Fellows Brad Magrey, Kristen Grandfield, Niki LaMontagne, Christopher Bostock, and Barbara C. Natale.)

The narratives of travelers provided a glimpse of both their home societies and the new civilizations they visited.

"These units eloquently demonstrate how many people traveled in the centuries before Columbus's voyage." —Seminar Leader older students' personal landscapes by encouraging them to read, to make beads, and to learn in multiple ways about Ibn Battuta and Africa. Christopher Bostock's unit, "The Expansion of Maps and Minds Before 1500: Ibn Battuta, Christopher Columbus, and Google Earth," harnesses technology to the study of history and geography for middle-schoolers. Marialuisa Sapienza's unit, "Who First Reached America: the Vikings, the Chinese admiral Zheng He, or Columbus?" focuses on maritime travel, pushing language arts students in high school to read primary source accounts carefully in order to answer the question posed by the title of her unit. Mary Lou Narowski's unit asks her middle-school students to make journals so that they can personally experience the thrill of doing their own research in both language arts and social studies. Brad Magrey's unit seeks to expose seventh and eighth-graders to the entire world in the 1300s by focusing on four different places in the 1300s and learning about these same places today.

According to the seminar leader, "As a group, these units eloquently demonstrate how many people traveled in the centuries before Columbus's voyage."

Frontiers of Astronomy

This seminar's premise was that astronomy is a subject that excites everybody and is therefore a great teaching tool, one that can be used to teach mathematics and physics, in addition, of course, to astronomy itself. The seminar's purpose was to develop different types of curriculum units, some to teach astronomy, others to use astronomy to teach the physical laws that control the solar system and other planetary systems, and yet others to teach the mathematical principles used to describe these systems. The seminar dealt with many different aspects of astronomy — from the Sun, to planets, to how stars evolve and die,



The seminar on "Frontiers of Astronomy." (Left to right: Fellows Jennifer B. Esty, Maria Stockmal, Larissa Giordano, Kenneth W. Spinka, Huwerl Thornton, Jr., Hermine E. Smikle, and Nicholas R. Perrone; seminar leader Sarbani Basu.)

This seminar's premise was that astronomy can be used to teach mathematics and physics, in addition to astronomy itself.

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though the curriculum units teachers wrote focused mainly on the solar system. Nine units, across the span of grade levels, were developed in this seminar.

The first set consists of units to teach astronomy. Larissa Giordano developed a unit to teach second-graders about the Moon; the emphasis is on learning to read through reading mythology about the Moon, and on science through learning the phases of the Moon and eclipses. Huwerl Thornton's unit is about moons — not just Earth's Moon, but also Europa, one of Jupiter's moons, and Titan, one of Saturn's moons. The third unit in this series is that by Nicholas Perrone, which though nominally for fourth-to-sixth-grade students, can be used in other grades; its basis is a Web-based tool students will use to "explore" the solar system.

Next are two units about teaching physics. Julia Biagiarelli's unit aims to teach the basic laws of physics to eighth-graders, who will start by learning about Brahe, Kepler and Newton before learning the basic laws that can be used to explain the motion of the planets. Jennifer Esty's unit is for a higher grade and aims to teach students the nature of light, and the different processes by which astronomical bodies emit light. The last group consists of units to teach mathematics. The first is by Maria Stockmal, who aims to use solar-system data to teach students how to graph and compare data, how to calculate slopes, how to use trigonometry to estimate distances, arc lengths, and sections. Sam Jones' unit deals with teaching conic sections (both their history and what they are) using solar-system data. Hermine Smikle's unit is meant for Advanced Placement classes and has multiple aims, one of which is to introduce students to astronomy, and the other to compare topics in mathematics with those in astronomy. She connects mathematics to astronomy through the formulae used to describe the basic laws of physics. The last unit of this series, by Kenneth Spinka, aims to use the principles of astro-navigation to teach algebra, geometry, calculus and trigonometry.

The Science of Natural Disasters

The seminar leader conceived of this seminar as addressing Earth as a highly active, mobile and, at times, hazardous planet. Earth's violent activity arises not only from its oceans and atmosphere, but also from its deep interior as well its orbital journey through a debris-filled solar system. The Earth's deep interior is continuously turning itself inside out through the action of convection (hot material rises, cold material falls), leading to plate tectonics and hence earthquakes and volcanoes. Such phenomena are powered by heat flow from the planet's interior. In contrast, the power received from outside the planet, from the Sun, is tens of thousands times greater and drives more frequent disasters in the atmosphere and oceans in the form of hurricanes, mid-latitude cyclones (i.e., nor'easters), thunderstorms, and tornadoes. Finally, huge quantities of energy are released upon the rare but catastrophic collisions with space objects such as Earth-crossing asteroids.

This seminar studied the science of some of the most prevalent and/or catastrophic natural disasters. Such natural hazards are not only of enormous sociThis seminar addressed Earth as a highly active, mobile and, at times, hazardous planet.

etal importance, but the variety of scientific processes acting during disasters provides a profound window into the both the origins and workings of our planet. Seminar meetings covered a wide range of topics, including the following:

- 1. The energy sources that power natural disasters;
- 2. Plate tectonics;
- 3. Earthquakes: principles and events around the globe;
- 4. Volcanoes: volcanism at plate boundaries and volcanic eruptions;
- 5. Climate change;
- 6. Weather and atmospheric circulation;
- 7. Tropical cyclones: hurricanes, cyclones and typhoons;
- 8. Storms, tornadoes and lightning;
- 9. Space objects, impact disasters and extinctions;
- 10. History of life, human impact, population growth.

The seminar focused on elucidating the common scientific themes related to all disasters, primarily relating to both the Earth's solid interior and its atmospheric envelope. This approach is required for using disasters as a vehicle for employing basic physics, chemistry and math in learning how the Earth works. Resources for this seminar were derived largely from standard college texts such as *Natural Disasters* by Patrick Abbott. Internet sources were made available on a seminar Web page and were drawn from government science agencies such as the U.S, Geological Survey (USGS), National Oceanic and Atmospheric Administration (NOAA), National Science Foundation (NSF), and National Aeronautics and Space Administration (NASA).

The seminar was designed for any level of elementary or secondary course, and the Fellows were from the full range of grades in subjects from non-fiction literature and social studies (history, geography) to upper-level math and science. The curriculum units Fellows developed could be roughly categorized as (1) themes common to all disasters (e.g., convection, energy sources, and disaster cycles); (2) extreme weather, global warming and the effect of global warming on extreme weather; (3) earthquakes and tsunami; and (4) the application of natural disasters in core disciplines such as mathematics, geography, literature (non-fiction), and social studies.

Roberta Mazzucco's unit, intended for a third-grade science class but adaptable by teachers in grades two to five, concerns convection — the heating and rising of material or fluid and the eventual falling or cooling of that fluid as a source of earthquakes, volcanoes, and weather events such as thunderstorms, hurricanes and tornadoes. Teaching second grade, Erica Mentone employs cycles in order to build upon students' prior knowledge from a second-grade curriculum unit on life cycles; she addresses the hydrologic cycle, hurricane seasons, the tectonic cycle, and the recovery cycle. In a unit designed for first grade but similarly adaptable, Catherine Baker takes up space, energy, typical weather, the hydrologic cycle and extreme weather in teaching the scientific method in preparation for science fair while also covering district science strands for first grade. Also with the first-grade curriculum in mind,

The seminar focused on elucidating the common scientific themes related to all disasters using disasters as a vehicle for employing basic physics, chemistry and math in learning how the Earth works.

Annual Report: The Science of Natural Disasters

Kacey Jackson aims to excite students about scientific inquiry by learning about severe weather through hands-on experiments, video clips and pictures.

Zakia Parrish, who teaches physical chemistry at the high-school level, focuses on the major gases responsible for the greenhouse effect: water vapor, fluorinated gases, methane, and carbon dioxide, as well the sources of these gases, the history of their release, their global warming potential, and contribution to the greenhouse effect. A special education teacher working with students in middle and high school, Jacqueline Porter-Clinton wants students to examine evidence supporting and arguing against linking human-induced climate change and extreme weather conditions; students will write a persuasive essay to convince others to their way of thinking. Nicole Primeau, a teacher of high-school science, similarly asks students to interpret evidence on the question of whether the number of stronger hurricanes can be related to global warming. Also teaching science at the high-school level, Chrissy Bieler seeks to provide students with a comprehensive understanding of plate tectonics and how they affect the occurrence of earthquakes and tsunami around the world. Jonathan Knickerbocker, who teaches algebra and pre-calculus, wants to illustrate applications of mathematical functions and models through incorporating the scientific topic of natural disasters.

Ralph Russo, a high school history teacher, explores the New Madrid Earthquakes of 1811-1812 in search of a more comprehensive understanding of the geological profile of the United States. A teacher of middle-school social studies, Matthew Dooley applies five themes of geography (location, place, region, movement and human-environment interaction) to natural disasters



The seminar on "The Science of Natural Disasters." (Clockwise from front left: Fellow Catherine Baker; seminar leader David Bercovici; and Fellows Pedro Mendia-Landa, Roberta Mazzucco, Jonathan Knickerbocker, Zakia D. Parrish, Jacqueline Porter-Clinton, Matthew A. Dooley, and Chrissy A. Bieler.)

including volcanoes, earthquakes, hurricanes and tsunamis. Carol Boynton, a first-grade teacher, seeks to bring science into classroom non-fiction reading in order to excite students about the natural world, spark their curiosity, and see that science and reading are connected. An instructional coach who teams with classroom teachers, Pedro Mendia-Landa provides model activities that integrate standards in the four language domains of listening, speaking, reading and writing, as the students explore the theme of natural disasters and related myths, as well as accounts of natural disasters affecting New England in the 19th and 20th centuries.

According to the seminar leader,

For elementary and middle-school classes, the material may be used for basic earth/environmental science class work and any other related subject. For high school classes, the topic of natural disasters can be used for showing how math, physics, chemistry and biology are employed in studying topics of enormous societal, ecological and environmental impact. . . . These units provide a broad sampling of the many themes covered by this field and give fine examples of how the material can be applied across different grades and classes.

Health and the Human Machine

This seminar provided an overview of human nutrition and the operation of the human body from the perspective of biomedical engineering. As the seminar leader envisioned it, from a mechanical viewpoint, the human body is an elegant machine that requires inputs for sustained operation. What are the processes responsible for input of nutrients and raw materials? How are molecular nutrients extracted from ingested materials? How are these processes controlled? The human machine requires food and water for continued operation. But the relationship between the food intake and human health is complex and poorly understood. Some things are clear: whole foods that we ingest get broken down to components such as amino acids and sugars, which the body uses to synthesize new proteins and to generate or store energy. Protein synthesis, energy generation, and metabolic processes occur in cells throughout the body; all of these processes are related to the circulation of molecules in the body.

This seminar discussed these issues and attempted to establish some general descriptions of the ways our bodies are changed by what we allow to enter them. The issues of food intake, nutrition, and human health are becoming increasingly important in the U.S. The Centers for Disease Control and Prevention (CDC) report a dramatic increase in obesity in the U.S. over the period from 1985 to 2005. In addition, diseases related to environmental exposure to toxins and pollutants are widespread and still rising. For example, asthma among children has increased to epidemic proportions, accounting for one in six of all visits to pediatric emergency rooms in the U.S. And disorders of metabolism, such as diabetes, create tremendous challenges for many individ-

"These units provide a broad sampling of the many themes covered by this field and give fine examples of how the material can be applied across different grades and classes."

—Seminar Leader

This seminar provided an overview of human nutrition and the operation of the human body from the perspective of biomedical engineering. uals in the U.S. and other nations. Specifically, the seminar covered the following topics:

- 1. Introduction to human physiology viewing the human body as a complex, and sometimes fragile, machine;
- 2. Respiratory physiology structure of the lungs, anatomy of breathing, and oxygen uptake;
- 3. Heart physiology structure of the heart and vessels;
- 4. Nutrition body mechanisms for control of weight, obesity, vitamins (and diseases caused by deficiencies);
- 5. Diabetes the chemical and anatomical changes that result from this disease, as well as ways to treat the disease;
- 6. Infectious disease a discussion of communicable diseases including STDs that focused on the anatomical routes of infection;
- 7. Biomechanics how the human body performs in the physical world.

Discussion of these topics was supplemented with drafts of chapters from a book in progress, *Biomedical Engineering: Bridging Medicine and Technology*, by the seminar leader and Veronique Tran.

The Fellows prepared curriculum units that covered the breadth of human physiology. The collection includes units from a team of four teachers working together at the same middle school, across disciplines, to bring health information into their classrooms. Two of these projects focused on nutrition: Amy Migliore-Dest's unit is on the use of pop art techniques to teach about human nutrition. Crecia C. Swaim prepared a unit for French students that teaches about nutrition-al content of foods. These nutrition units are paired with two units on cardiovas-cular health and obesity. Grace Malangone, integrating language arts and science instruction, developed a unit on "Adolescent Obesity and Susceptibility to Disease," while Marisa Ferrarese — who teaches math and science exclusively — prepared a unit on maintaining good cardiovascular health and fitness.

Nutrition was a subject of two of the other units. Shannon E. Oneto's unit addresses nutritional information for elementary-school students, which also includes a primer on the sources of nutrients in foods. Karen A. Beitler, a highschool biology teacher, wrote a unit on the timely issue of genetic modification of foods. Sara E. Thomas prepared a unit on the use of graphic design techniques to teach high-school students about nutrition, smoking, and body image. Wendy Decter prepared a unit for high-school biology and physiology students that capitalizes on interest in crime-scene analysis to teach about cardiovascular physiology.

Three of the units focused on infectious diseases, discussing mechanisms of infection and how they influence physiology and the progress of disease. Heidi A. Everett, teaching high-school biology, prepared a unit called "Human Papillomavirus: Investigating the Prevention, Transmission, and Treatments of a Viral Infection." Melanie Laputka prepared a unit for world-language stu-

dents called "HIV/AIDS in Our Spanish-Speaking Community and the World." Another high-school biology teacher, Rosey Rawle-Pitter developed a unit on "Infectious Diseases: Hepatitis B and Tuberculosis." Finally, Melanie Wolf wrote a unit for elementary-school students to help them understand the impact of disabilities on students in their classrooms.

The seminar leader observed of the Fellows' curriculum units, "The range of material was impressive, as was the range of grade levels that the seminar produced units to satisfy."

The Process of Determining the Seminar Topics

Between October and December 2006, the teachers who served as Institute Representatives and Contacts for their colleagues had canvassed other teachers throughout New Haven elementary, middle, and high schools to determine the topics they wanted Institute seminars to address in 2007. (Please see Appendix for lists of teacher leaders.) The Representatives met together twice monthly and communicated individually with the school Contacts with whom they were responsible for staying in close touch. The Director and Associate Director of the Institute then approached Yale faculty members who were qualified and willing to lead seminars that engaged the desired topics. The Representatives then considered and selected from among their seminar proposals.

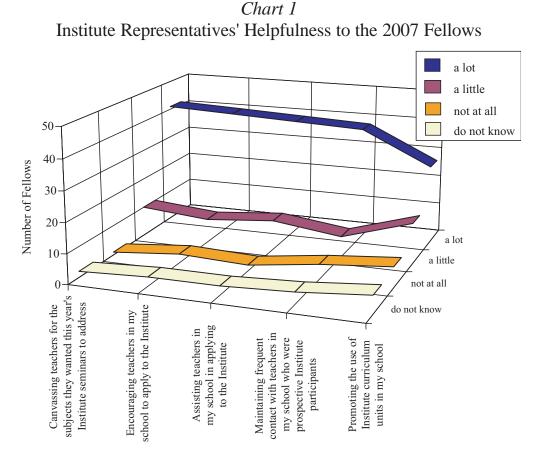
In their evaluations, the 2007 Fellows indicated that the Institute Representative for their school had been helpful in many ways: by encouraging and assisting them to apply to the Institute, maintaining frequent contact with them, asking for their views on seminar subjects for the following year, and promoting the use of Institute-developed curriculum units. (Chart 1, reading from left to right, moves from the more helpful to the less helpful activi-



School Representatives meeting, December 2006.

The Representatives and Contacts canvassed other teachers throughout New Haven elementary, middle, and high schools to determine the topics they wanted Institute seminars to address and selected from among their seminar proposals.

Annual Report: The Process of Determining the Seminar Topics





ties of the Representatives.) As a result, 45 (80 percent) of all Fellows said in the end that they had, while the program was being planned, sufficient opportunity to suggest possible topics for seminars. This is comparable to the rate of satisfaction indicated by the Fellows in 2004, 2005, and 2006 (76, 71, and 85 percent, respectively).

The Fellows' Application and Admissions Process

Having worked with teachers in their respective schools during the preceding months, the Institute Representatives met on January 2 to receive for distribution in all schools copies of the Institute application form, brochure, and descriptions of the seminars to be offered. At this meeting a general presentation of the subjects of the seminars ensured that all Representatives could explain to their colleagues the purpose of each seminar. On January 9 the Institute held an open house for prospective applicants where any teacher might learn more about the planned seminars from the Representatives and from the seminar leaders, who made brief presentations about the seminars they would lead and conducted discussions in small groups with teachers who might apply. On January 16 and 23 the Representatives met to discuss their progress in working with prospective applicants and to hand in their own completed applications. The final deadline for teachers applying to the Institute was January 30. This date was selected so that teachers would apply in advance of the February school vacation. The office would then have the vacation period to process application materials, and the review of applications could be

completed during February to provide the earliest possible notification to teachers who were accepted.

There are four principal criteria for teachers to be eligible for consideration as Fellows:

- The applicant must be a current New Haven school teacher who will be teaching in New Haven also during the school year following Institute participation.
- The applicant must agree to participate fully in the program by attending and coming prepared to all scheduled meetings and by completing research and meeting due dates in the preparation of a curriculum unit.
- The teacher must demonstrate in the application that his or her specific interests are directly related to the seminar as it has been described by the seminar leader.
- The applicant must also show that the seminar and the curriculum unit that he or she proposes to write are directly related to school courses that he or she will teach in the coming school year.

For many years it has been the policy of the Institute to allow no more than twelve teachers to enroll in any seminar. The small size of the seminars is necessary both for the collegiality of the Institute experience and for the individual attention that each teacher's work in progress receives from the seminar leader and from other teachers in the seminar. The Institute has aimed each year to gauge the amount of teacher interest in order to offer enough seminars



January Open House for Prospective Fellows. (Standing at right: Fellow and Representative Maria Cardalliaguet Gómez-Málaga.)

The small size of the seminars is necessary both for collegiality and for the individual attention that each teacher's work in progress receives.

Annual Report: The Fellows' Application and Admissions Process

to accommodate almost all the teachers who wish to participate. During the planning process 115 teachers expressed definite interest in participating in one of the seminars to be offered. Of those teachers, 65 were from high schools, 9 from middle schools, and 41 from elementary and K-8 schools. By the application deadline, the Institute Representatives, assisted by the school Contacts, had obtained applications from 85 of these elementary, middle, K-8, and high school teachers in the humanities, social sciences, and sciences.

The Fellows application form calls for the interested teachers to specify the subjects and grade levels they teach, the course or courses in which they plan to introduce the material they study in the Institute, and their willingness to meet each of the Institute's requirements for full participation. The applicants also write a brief essay describing why they wish to participate in the seminar to which they are applying, and how the curriculum unit they plan to write will assist them in their own teaching. Writing this essay is, in effect, their first step in formulating a curriculum unit through which they will bring the material they study from the seminar into their own teaching.

A team application form requires interested teachers to demonstrate how the team envisions working together in inter-grade and/or interdisciplinary ways and to outline plans for a culminating activity in the school. Teams may receive preference during the admissions process, and are required to submit a final report on their work together during the following school year. If a team is not admitted as such, however, the members of the team may be admitted to the program as individual Fellows. Also, the Institute encourages all Fellows to work as informal teams in their schools.

To continue to support the school district's efforts to attract and retain qualified teachers, the Institute placed considerable emphasis again in 2007 on identifying appropriate ways to assist individuals in their first or second year of teaching in New Haven. Connecticut's Beginning Educator Support and Training (BEST) program requires that new teachers in their second year prepare a portfolio — including lesson plans, student work, videotaped class sessions, and reflection — in order to be fully certified. A successful three-year pilot (from 2002 through 2004) had earlier shown that the collegial support of the Institute and the development of a curriculum unit could assist new teachers in entering the New Haven Public Schools and, in certain cases, in completing the required portfolio.

All applications were reviewed by three groups: seminar leaders, school principals, and seminar Coordinators. The seminar leaders examined the applications for their relationship to the seminar subject. This afforded each seminar leader the opportunity, as well, to tailor or enlarge the bibliography for the seminar so that it would address the specific interests of the teachers who would be accepted. At the same time, the applications were reviewed in the applicant's own school; the Institute's Representative for each school provided the school principal a copy of each teacher's application to examine. The intention is to increase awareness within each school of the projects that teachers wish to pursue in Institute seminars, to afford an opportunity for the principal

To support the school district's efforts to attract and retain qualified teachers, the Institute placed considerable emphasis on identifying appropriate ways to assist individuals in their first or second year of teaching in New Haven.

and other educational leaders to examine the relationship between teachers' applications and school plans, and to increase the likelihood that the teachers will have a course assignment in which they can use their curriculum unit. In this review, principals answered the following questions:

- Is the applicant's proposal consistent with, and significant for, the curricula and academic plans for your school?
- List the courses and/or the grade levels where the proposed unit will be used; if there are none, state "none."
- Will the applicant be assigned next year one or more of these courses in which to teach the unit?
- Please indicate any special merits or problems you find with the applications.

When this procedure was introduced in 1998, Reginald Mayo, Superintendent of the New Haven Public Schools, had written to all principals: "We believe this is a highly promising way for ensuring that the assistance that the Institute provides to individual teachers and to teams of teachers has the best prospect for advancing each school's academic plans." This process informs the consideration of each application, provides each applicant pertinent guidance, and provides an opportunity for Institute Representatives to talk with their principals about the Institute.

The following examples of principals' comments on the Fellows' applications amply illustrate how they appreciate the significance and usefulness of the curriculum units that teachers in their school will be designing.

The proposal supports the school's plan to offer AP English Language and Composition as an 11th-grade American Literature course.

Aligns with district standards. . . would benefit our students.

[The applicant's] proposal will tie in nicely with the current language arts curriculum and training he has received from the Connecticut Writing Project. I find the proposal meaningful and of high interest to the students [he] teaches.

Excellent ideas for connecting to language arts curriculum. . . A study of American authors and culture would benefit all students.

It aligns with and supports district curriculum. . . . [The applicant] will benefit, as well as our students, from her participation in this program.

A literature-rich curriculum is the foundation of our district's literacy program. . . . [The applicant's] unit will help to develop our students' writing skills by complementing our . . . writing program.

This process informs the consideration of each application, provides each applicant pertinent guidance, and provides an opportunity for Institute Representatives to talk with their principals about the Institute.

"Aligns with district standards. . . would benefit our students." —Principal

Annual Report: The Fellows' Application and Admissions Process

The proposal is consistent with reading comprehension and degrees (DRP) objectives of the Connecticut Mastery Test (CMT). Our current comprehensive school plan emphasizes these objectives, particularly with respect to non-fiction. . . a stellar educator who works well with her teaching team and school administrators.

Aligns with district standards. . . Applicant is an outstanding teacher and mentor.

Aligns with district-wide curriculum. . . Applicant is an outstanding member of our staff [who] has thorough knowledge of curriculum and adheres to district standards.

Literature is the core of our literacy program. . . . This unit can be integrated into most areas of the curriculum (literacy, writing, art, music). [The] unit will help to foster a global understanding for our students of their history.

I think the work at the Institute will be a huge asset to [the applicant's] teaching, and [she] will be an asset to the group.

[The proposal matches] the district goals and vision with the need of challenging curriculum that is engaging and that differentiates English Language Learners' needs.

[Our school] is an arts-integrated magnet. This unit would provide the teacher a unique opportunity to integrate science with math, literacy and the arts.

Our students lack knowledge in world history, map skills, information about heroes in the past. This curriculum provides all of that and more. It will capture their attention.

This proposal is consistent with our school's academic plans and our lack of student motivation at these grade levels. . . very well crafted.

Fits beautifully as a motivating reading and writing activity for students in engage in during the literacy block. . . focuses on a topic of high interest to our students. . . !

We have a large Latino student population who would benefit greatly. . . . [This] is an excellent teacher. Her expertise and motivation make her the perfect candidate.

This effort is a part of the district's healthy living curriculum plan. . . an outstanding teacher who will use this curriculum to the ultimate to enhance student learning.

Excellent proposal in keeping with New Haven's curriculum — grade 5 language arts and social studies.

"Literature is the core of our literacy program. . . . This unit can be integrated into most areas of the curriculum."

-Principal

Aligns with our mission, purpose and theme. . . [for] pre-calculus [and] geometry.

As in the past, the Institute formed a group of teachers who served as Coordinators to assist with the organization and smooth operation of the seminars. The Director, with the advice of teacher leaders, selects these Coordinators from the group of Representatives who become Fellows and who had earlier helped to select seminar subjects and identify interested teachers.

There is one Coordinator in each seminar. They act as liaisons between the seminars and a Coordinators committee to facilitate the exchange of information and to provide teacher leadership without diminishing the collegial rapport within each seminar. A seminar Coordinator must be, and must intend to continue as, a full-time teacher in one of New Haven's public schools. A Coordinator accepts the following responsibilities:

- To work with school Representatives at the conclusion of the application process, to serve on an admissions committee to consider proposals for curriculum development submitted by teachers applying to become Fellows, and to make recommendations to the Director about whom to accept as Fellows.
- To monitor the progress of a seminar through observation and conversation with participants, and to give progress reports at weekly seminar Coordinators committee meetings.
- To report to the seminar members any organizational information to be circulated, such as the schedule of any visitors and notice of Institute-wide activities.



Application Review meeting. (Left to right: Seminar Coordinators Jennifer B. Esty, Sara E. Thomas, Sandra K. Friday, Mary Lou Narowski, and Chrissy A. Bieler.)

Coordinators provide teacher leadership without diminishing the collegial rapport within each seminar.

- To act as a resource for members of the seminar, providing information about unit-writing deadlines, guidelines for writing curriculum units, computer assistance available to Fellows, copyright procedures, and University facilities Fellows may use.
- To be available to the seminar leader to provide information on Fellows' perceptions of the seminar and on Institute policies generally, and to offer assistance as may be needed.
- To assist with the smooth operation of the seminar by keeping track of Fellows' promptness and attendance and the timeliness of their written submissions, and by encouraging Fellows to make and keep appointments for individual meetings with the seminar leader.
- To attend and come prepared to weekly committee meetings with the Director or Associate Director and to take professional days as needed for the above purposes.

The Coordinators work together as an admissions committee for the Institute. They met after school on January 31 to conduct a first reading and discussion of the applications to their respective seminars. They then contacted all teachers whose applications needed to be clarified or amplified. On February 7 the Coordinators met for a full day, by taking professional leave, for their final consideration of most applications. They met again on February 13 to resolve issues remaining in a few applications.

During their review, the Coordinators considered the findings of the school administrators and seminar leaders and made recommendations to the Director about which teachers the Institute should accept. By these means, the Institute seeks to ensure that all Fellows participate in seminars that are consistent with their teaching assignments and applicable in the courses they teach. The Institute accepted as Fellows 61 New Haven teachers, 25 in the humanities and 36 in the sciences and mathematics. A joint meeting of seminar leaders and Coordinators was held February 26 to discuss the admissions process just completed, and to review the seminar and unit writing process and the policies and procedures of the Institute. In this way, the Coordinators began to provide the seminar leaders with information about the teachers who had been accepted and to discuss their role in assisting with the conduct of the seminars.

To provide additional preparation for the seminar leaders — three of whom were leading a Teachers Institute seminar for the first time — they met, too, with several Yale faculty members who had led Institute seminars before. This informal orientation for new seminar leaders, begun in 2006, has become part of the annual schedule.

The Fellows Who Were Accepted

Fellows came from 27 of the district's 45 schools, including ten of the twelve New Haven high schools, one of the two middle schools, one of the three tranThe Institute seeks to ensure that all Fellows participate in seminars that are consistent with their teaching assignments and applicable in the courses they teach.

sitional schools, and fifteen of the 28 elementary and K-8 schools. The Institute first admitted elementary school teachers in 1990; by 2007 most teachers in the elementary and middle grades were in K-8 schools as a result of the district's move toward such schools. Twenty nine (48 percent) of the Fellows accepted in 2007 were elementary- or middle-grades teachers, and 32 (52 percent) were high school teachers. Overall, 20 Fellows taught grades kindergarten to five, 9 taught grades six to eight, and 32 taught grades nine to twelve. Three schools had six or more Fellows, and eight schools had three or more.

Consistent with the Institute's aim to serve the largest possible proportion of all New Haven teachers, 32 (52 percent) of the teachers accepted in 2007 were participating in the Institute for the first time. Of these first-time Fellows, 11 were in the humanities and 21 were in the sciences. Seven (11 percent) of the Fellows accepted were black, most (52 of 61, or 85 percent) were non-Hispanic white, one was Hispanic, and one was of another background. The large proportion of teachers who are of non-Hispanic white backgrounds reflects a broader trend in the teaching force and among new hires in New Haven and many other school districts around the country.

The participants included teachers from all stages of their careers, although the Fellows were younger on average than was the case in earlier years. Seven first-year and six second-year teachers were accepted to participate; therefore one in five (13 of 61, or 21 percent) of all Fellows were in their first two years of teaching, indicating the Institute's potential to assist with induction of new teachers. Overall, four in ten Fellows (40 percent) were age 30 or younger and more than half (58 percent) were 40 or younger (compared with 30 percent as recently as 2001). Fifteen percent of Fellows were 41-50 years old; and 27 percent were older than 50. The decline in the proportion of Fellows ages 41-50 is notable. After having comprised one third to one half or more of Fellows during the 1990s, teachers in their forties made up 20 percent of Fellows in 2006 and 15 percent of the Fellows in 2007.

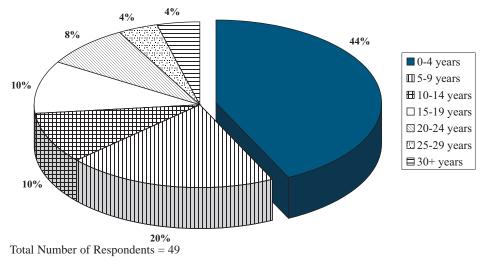
As Chart 2 shows, in 2007 almost half of the Fellows (44 percent), had four or fewer years of experience in teaching. This is double the proportion of Fellows with so little experience in the 1990s, when about 20 percent was the norm, and began in 2002, when the Institute initiated a pilot to involve more new teachers in its seminars. Almost two thirds (63 percent) had four or fewer years of experience teaching in New Haven. Still, in 2007 one quarter (26 percent) of the Fellows had 15 or more years of total experience in teaching. Fourteen percent had 15 or more years teaching experience in New Haven.

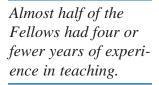
Indicative of the need for the professional development that the Institute provides, three quarters of Fellows (75 percent) had been in their present teaching position four or fewer years. This helps to explain why many teachers say they need to deepen their knowledge in subjects they have been recently reassigned to teach, or curricular materials for students of a different age or background from those they have taught before.

One in five of all Fellows were in their first two years of teaching, indicating the Institute's potential to assist with induction of new teachers.

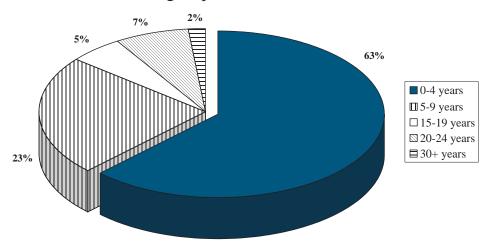
Annual Report: The Fellows Who Were Accepted

Chart 2 Total Years Teaching Experience for 2007 Fellows

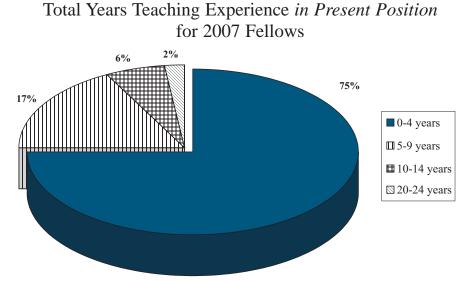


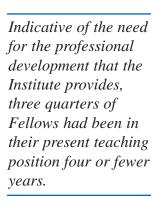


Total Years Teaching Experience in New Haven for 2007 Fellows



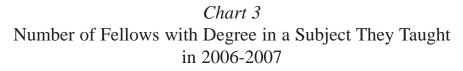
Total Number of Respondents = 56

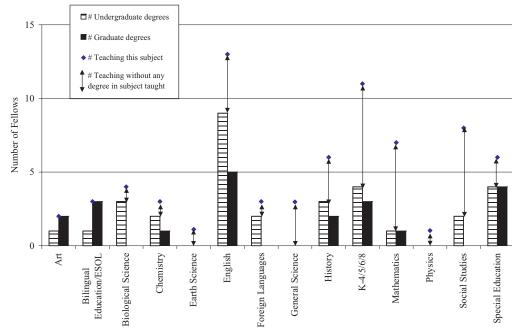




Total Number of Respondents = 52

As in past years, many of the 2007 Fellows did not major in college or graduate school in the subjects they currently teach. As Chart 3 shows, in no field other than bilingual education and art did all Fellows teaching a subject have a graduate or undergraduate degree in that subject. In three fields — earth science, general science and physics — no Fellows had a graduate or undergraduate degree. Only two of seven teachers of mathematics had a graduate or undergraduate degree in that area. Only three of six teachers of history and two of eight teachers of social studies had a degree in the field. Three of thirteen teachers of English lacked a degree in the subject.



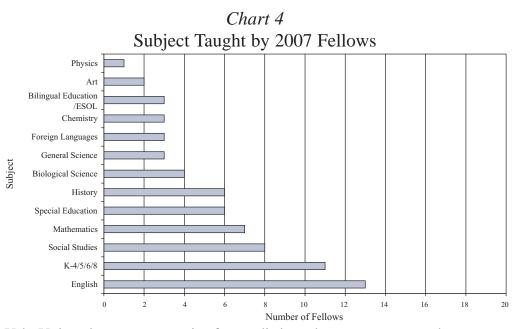


Many of the Fellows did not major in college or graduate school in the subjects they currently teach.

> Chart 4 shows the subjects Fellows taught in the 2006-2007 year of their Institute participation. Overall, one third (37 percent) of Fellows in the humanities and three fifths (63 percent) of Fellows in the sciences and mathematics had not majored either in college or in graduate school in one or more of the subjects they taught in that year.

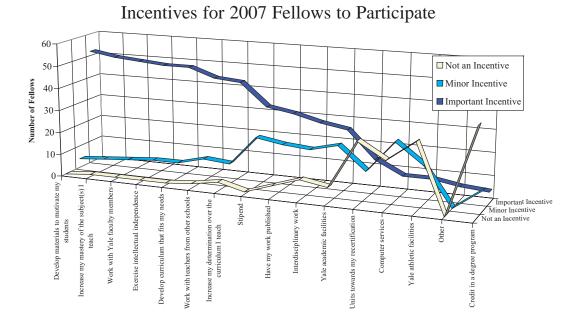
> Understandably, then, when the 2007 Fellows were asked about the incentives that attracted them to participate in the Institute, they responded (as Chart 5 shows, reading left to right from the most to the least important) that the most important incentives were the opportunities to develop materials to motivate their students (93 percent), to increase their mastery of the subjects they teach (89 percent), to work with university faculty members (88 percent), to develop curricula to fit their needs (86 percent), to exercise intellectual independence (86 percent), and to work with teachers from other schools (79 percent). Incentives one might imagine to be important for teachers with access to

Annual Report: The Fellows Who Were Accepted



Yale University — opportunity for credit in a degree program and access to Yale athletic facilities — were much less important for Fellows in the Teachers Institute.

Chart 5



The most important incentives were the opportunities to develop materials to motivate their students and to increase their mastery of the subjects they teach.

As past Institute studies have shown, Fellows are in most respects highly representative of all New Haven teachers. So, for example, this year's Fellows continue to reflect the gender and ethnicity of all New Haven teachers (who as a group have changed demographically through retirements, resignations, and new hires). As in other cities there are great disparities overall between the ethnicity of New Haven teachers and of their students. (See Table 1.) Similarly, the Yale faculty members who have led Institute seminars generally reflect the wider faculty at Yale.

Table 1

| | White non-Hispanic | | Black non-Hispanic | | | Hispanic | | | Other | | | |
|--|-----------------------|-----|-----------------------|-----|-----|----------|-----|------|--------|-----|------|--------|
| | All | | Female | | | Female | All | Male | Female | All | Male | Female |
| Institute Fellows, 2007 | 84% | 20% | 64% | 13% | 4% | 9% | 2% | 0% | 2% | 2% | 2% | 0% |
| Institute Fellows, 1978-2007 | 70% | 21% | 50% | 24% | 5% | 19% | 4% | 1% | 4% | 2% | 0% | 1% |
| New Haven Public School Teachers, 2007 | 75% | 20% | 55% | 16% | 3% | 12% | 7% | 2% | 5% | 2% | 0% | 2% |
| New Haven Public School Students, 2007 | 12% | 6% | 6% | 51% | 26% | 25% | 36% | 18% | 18% | 2% | 1% | 1% |
| Institute Coordinators, 2007 | 100% | 0% | 100% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| Representatives and Contacts, 2006-2007 | 73% | 23% | 50% | 20% | 4% | 16% | 7% | 0% | 7% | 0% | 0% | 0% |
| Institute Seminar Leaders, 2007 | 80% | 60% | 20% | 0% | 0% | 0% | 0% | 0% | 0% | 20% | 0% | 20% |
| Institute Seminar Leaders, 1978-2007 | 86% | 72% | 15% | 7% | 5% | 2% | 5% | 3% | 2% | 1% | 0% | 1% |
| Yale Faculty, 2007 (includes tenured and term ladder faculty) | 82% | 57% | 25% | 4% | 2% | 2% | 2% | 2% | 0% | 12% | 8% | 4% |

Ethnicity and Gender of Participants

Totals may not add to 100% due to rounding.

Activities for Fellows

At the first organizational meeting of each seminar, held on March 6, the seminar leader distributed an annotated bibliography on the seminar subject and presented the syllabus of readings that he or she proposed the seminar would consider. The Fellows described the individual curriculum units that they planned to develop. This afforded the members of each seminar an overview of the work they were undertaking together and the projects they would pursue individually. The bibliographies both introduced the seminar subject and guided Fellows as they began research on their curriculum units. Several Fellows remarked on the value of their seminars' reading lists, which one called "superior." Another said, "The readings . . . were new to me and I feel that I can incorporate a great deal of the learned knowledge into my future units." Another said the seminar leader "provided literature that was interesting and useful to the high school classroom." Another Fellow termed " the amount of reading . . . very fair and manageable, plus it was interesting and affordable." Similarly, one said: "Although the required readings were sometimes long... the amount of work was reasonable, and all of the readings were relevant." Another noted,

Fellows are in most respects highly representative of all New Haven teachers.

Annotated bibliographies both introduced the seminar subject and guided Fellows as they began research.

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We had a detailed reading list and everything was clearly spelled out. [The seminar leader] continuously asked us for input on the syllabus and if there were items we needed more time on or topics we wanted included.

One Yale faculty member characterized this interactive way in which seminar leaders often compose their reading lists: "I modified the agenda for discussion and assigned readings specifically in response to discussion and the interests of the Fellows." According to another, "It is important to have a good set of materials for reading by all of the Fellows, and to give assignments for reading prior to each weekly seminar."

Before the second seminar meeting all Fellows met individually with their seminar leader to discuss their projects. The Institute requires that Fellows schedule at least two such conferences as part of the unit writing process; many Fellows, however, meet more frequently with their seminar leader. At the end of the program, almost all Fellows (88 percent) said they had ample opportunity to discuss their choice of readings with the seminar leader. According to one Fellow, "The two 'personal' meetings with [the seminar leader] were helpful. The most important thing he helped me with was how to refine, simplify and streamline my topic." Another said,

[The seminar leader] was always willing to answer questions about the topics being covered and made time outside of the seminar for Fellows if it was necessary. He made all the Fellows feel comfortable and fostered a fun yet collegial environment.



The seminar on "Health and the Human Machine." (Seminar leader W. Mark Saltzman and seminar Coordinator Sara E. Thomas.)

"I met individually with Fellows as needed and requested, and had e-mail contact with all of them to answer questions or to look over drafts." —Seminar Leader

In addition to the two required conferences, one seminar leader "tried to have an informal office hour before class most weeks; that worked well except during the final weeks of school, when the Fellows were very busy." Another "initiated the contacts, usually by passing a sheet around the room and asking them to each sign up for meeting times. On some occasions I also e-mailed individual Fellows and asked them to come to see me for more help." Another seminar leader said,

I organized all such formal meetings by setting up a schedule on the seminar Web page. This was done twice formally for the first and second drafts. But I also met individually with Fellows as needed and requested, and also had regular e-mail contact with all of them to answer questions or to look over drafts or pieces of drafts.

During the period that preceded the regular weekly meetings, Fellows continued their reading, both preparing for the upcoming seminar discussions and working toward a brief prospectus of what their final units would contain. At the second seminar meeting, on April 10, Fellows submitted the prospectus, presented their revised unit topics, and began to discuss common readings. The regular weekly seminar meetings began on May 8; thereafter Fellows continued to develop their units in stages, with a first draft submitted May 29. The weekly meetings of the seminars continued through July 17, with Fellows submitting the second draft of their units July 3 and completed units by July 31.

Fellows submit the prospectus, together with a revised unit topic and a list of appropriate readings, at the time of the second seminar meeting. This allows them six weeks to write a first draft. The due date for the second draft is late enough to allow Fellows ample time to address the comments they received on the first draft from other Fellows and from the seminar leader. Most Fellows have been satisfied with this schedule and its deliberate series of deadlines during the spring and into the summer. Overall, 91 percent of the Fellows (compared with 79 percent in 2006 and 75 percent in 2005) thought the unit writing deadlines occurred at the right time in relation to the school calendar. In contrast to a few who thought the program should conclude either earlier in the spring or later in the summer than it does, one Fellow "found the schedule of the Institute to be conducive to my schedule as a teacher. Starting in late February and ending in late July, Tuesdays work well, as did the times of the talks and seminars." Another felt "the way the due dates worked out was very effective."

Fellows spoke of the benefits of an extended period for research, writing, and reflection: the importance of what one called "the duration of the seminar." Another who "found it a little difficult to keep up with the curriculum writing initially" said, "After the first two drafts I felt I had more time to dedicate to my unit. I enjoyed reading for my seminar and learned a lot." Another elaborated,

"[1] found the schedule of the Institute to be conducive to my schedule as a teacher. Starting in late February and ending in late July, Tuesdays work well." —Institute Fellow Although it is very demanding and there is no getting around that, doing the research brings its own rewards as you grow in knowledge of the particular subject matter of your seminar and unit and take on the challenge of making the subject matter palatable and interesting for (in my case) young learners. I have especially enjoyed the teachers . . . in my seminar and learned from them. Within our school day there is not enough time to interact for any length of time with our colleagues so the seminar provides us with this opportunity.

A first-year teacher observed,

My Institute experience was, primarily, a chance for me to critically analyze how I plan lessons and units for my classroom. By drawing out and forcing me to revise a unit multiple times, the Institute ensured that I was putting the highest-quality unit into my classroom. Secondly, my experience . . . exposed me to new material that will help make my teaching more substantial and engaging for my students. As a content-area teacher, it is important that I not only have a surface-level knowledge of my course material, but a deeper understanding of the topic to provide more answers to deeper questions my students ask. The Institute helped fill many of my own knowledge gaps in this particular area.

As these examples suggest, the Institute attaches great importance to the process through which Fellows develop their curriculum units. Many Fellows commented on the value of following this process — including not only guidance from the seminar leader but also advice from other Fellows. One called "management of this process" a "strength" of the Institute: "Anyone who follows the process will . . . reach the end." Another cited "valuable guidelines and suggestions when writing the unit." Others observed:

Although I did feel tired occasionally, I did not realize how much work was done until I looked back to the beginning and followed the steps. The management of getting through the work was well done.

The Institute was excellent. . . . There was sufficient support provided I knew what was expected of me at each juncture. [Though] some of the deadlines were difficult to adhere to during the school year, once the school year ended the workload was much easier to handle. I don't see another way of structuring it; I just found it a bit of a challenge. I learned a lot and I have a useful and engaging curriculum unit.

Working through the process of creating and completing a unit seemed like an overwhelming endeavor at first. However, the way the Institute structured the due dates for completion of each step "Within our school day there is not enough time to interact for any length of time with our colleagues so the seminar provides us with this opportunity." —Institute Fellow

As these examples suggest, the Institute attaches great importance to the process through which Fellows develop their curriculum units.

"The way the Institute structured the due dates for completion of each step made the process less daunting. It also increased my efficiency." —Institute Fellow

made the process less daunting. It also increased my efficiency in completing the project. I felt like my time spent on this project was never wasted and I did not once find myself procrastinating.

In a typical comment, one Fellow praised a seminar leader for "the skill, insight, and critical ear to help me define (divine in some instances) where I was going." Another said of a seminar leader, "He paid attention to our units and encouraged us to pay attention to each other's."

Discussion in seminar of Fellows' work-in-progress contributes both to unit development and to the seminar experience. One "enjoyed how each Fellow taught one lesson from his/her unit. These teachable moments proved to be essential in our development of the classroom activities section in our unit plan." Another said this "gave me the chance to try out a lesson and see if it works. This was a most beneficial exercise." According to others,

It was a pleasure to work with other New Haven schoolteachers outside of my own school. We taught different aspects of our unit and were able to give and receive advice and suggestions on how to make the lesson even better. It was great to be able to bounce ideas off each other and use or adapt what other teachers do.

We prepared pieces of lessons from our units to present to our colleagues.... This was a useful exercise in that it forced me to think about how I was going to present my unit to my students. It was also very interesting to see how other Fellows ... approached [it]. ... Hands-on projects are coming out of this seminar, which makes me think these units will be well received by New Haven students.

The last four weeks or so were really fun. [The seminar leader] presents his material well and it was interesting to see how our colleagues' [units] began to take shape. When I had the chance to present two parts of my unit during these last few weeks it was great to have the feedback of other public school teachers.

At the conclusion of the seminars, most Fellows indicated that the program schedule (89 percent) and the guidelines for writing a unit (93 percent) had been useful to them to a great or moderate extent. This year three fifths (63 percent) of the Fellows said they tried out the subject matter and as many (63 percent) said they tried out the strategies of their units in their classroom. Of those who did, most Fellows (82 percent) said students' reactions influenced what they included in the final units. One said, "Having . . . tr[ied] out different parts of the unit with my students, I think that it will be both useful and relevant to those who teach 10th grade biology."

During the first two months of the program, which serve as a reading period, all Fellows also met together on Tuesday afternoons for a series of talks

Discussion of Fellows' work-in-progress contributes both to unit development and to the seminar experience.

"It was great to have the feedback of other public school teachers." —Institute Fellow

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by current or prospective seminar leaders. These talks are designed either to acquaint Fellows with the work of seminars other than their own, or with subjects of possible future seminars. Current seminar leaders gave three of the talks: Langdon Hammer on "American Voices: Listening to Fiction, Poetry, and Prose"; Valerie Hansen on "Voyages in World History before 1500"; and Mark Saltzman on "Health and the Human Machine: Engineering to Protect against Infectious Disease." Two prospective seminar leaders also gave talks: Jonathan Holloway on "We Return. . . . We Return: Memory and Citizenship Claims in the Long Civil Rights Era," and John Tully on "Vibrating Molecules, Global Warming and the Vinland Map."

The talks were popular. One Fellow said, "The lecture series provided stimulating opportunities to look at other disciplines with some thought-provoking new ideas." Another, though a participant in a humanities seminar, believed "one of the science lectures was excellent." Others cited "the variety of lectures" as a "strength" of the Institute and how they "enjoyed the talks by all the professors"; this "really helped in developing an interdisciplinary unit." A Fellow who similarly "enjoy[ed] the talks that shed light on the various top-ics" felt they "provided a good lead into the [seminar] and . . . a collaborative atmosphere." Even more enthusiastic was this Fellow: "I loved the series of lectures. . . . Each one of them was fascinating and encouraged me to explore the subjects further."

Most Fellows saw in the talks the purposes for which they were organized. Virtually all (96 percent) Fellows said that to a great or moderate extent the talks provided intellectual stimulation, while most (79 percent) said they provided a sense of collegiality and common purpose among Fellows. More than three quarters (82 percent) said the talks were successful to a great or moderate extent in providing an overview of Fellows' work in the seminars. Almost all (94 percent) said the Institute scheduled the right number of talks. Many Fellows reported that the talks prompted them, to a great or moderate extent, to read about the talk topics (61 percent), discuss the topics with their students (56 percent), and discuss the talks with other teachers (79 percent). These numbers were comparable to those of prior years.

As in other years, the Institute scheduled an early workshop on curriculum unit writing. As part of their admissions folder, all Fellows had received Institute guidelines and mechanical specifications for preparing curriculum units, which outline the Institute writing process and steps for Fellows' formulating, reformulating, and expanding their individual units. On March 20, the teachers serving as seminar Coordinators led a panel discussion on curriculum unit development.

The Coordinators spoke from their own experiences as Institute Fellows in researching and writing curriculum units. They selected for emphasis areas they thought especially important for all Fellows to understand: "Narrowing Your Topic and Considering Your Audience"; "Following the Institute Process "I loved the series of lectures.... Each one was fascinating and encouraged me to explore the subjects further."

—Institute Fellow

Coordinators spoke from their own experiences as Institute Fellows in researching and writing curriculum units.

for Unit Development"; "Aligning Your Unit with School Plans and District Goals"; "Using the Institute's Reference Tools and Technologies for Research and Writing"; and "Collegiality and Professional Development: The BEST Portfolio and Beyond." After questions, the Fellows broke into seminar groups, where each Coordinator led a discussion of purposes and practices in writing Institute curriculum units. This offered an opportunity for the first-time Fellows to learn about the guidelines and other aspects of curriculum unit writing from experienced Fellows. It encouraged veteran Fellows to share their experience and allowed all to discuss how the completed volume of units might display a range of teaching strategies and contain a standard form of annotation. By leading these discussions, the Coordinators also identified themselves as being knowledgeable about the process of writing curriculum units, so that other Fellows might seek their advice.

In other recent years the seminar Coordinators organized a discussion to recognize and encourage the beginning teachers who were participating as Fellows. This was an opportunity for experienced Fellows to congratulate their new colleagues for participating in the Institute during their first or second year of teaching, to invite them to seek support from Fellows who had faced similar challenges, and to reflect with them on teaching in New Haven. While Fellows did not believe such a meeting was necessary in 2007, on an informal basis new and more experienced teachers did once again work together.

At weekly meetings with the Director and Associate Director, held the day after seminar meetings, Coordinators discussed the progress of each seminar and gained an overview of the program. Both seminar leaders and Fellows acknowledged in their evaluations the essential role of the Coordinators.



Meeting of seminar Coordinators. (Clockwise from left: Associate Director Josiah H. Brown; and Coordinators Jennifer B. Esty, Sandra K. Friday, Sara E. Thomas, Chrissy A. Bieler, and Mary Lou Narowski.)

Both seminar leaders and Fellows acknowledged the essential role of the Coordinators.

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Almost every Fellow agreed (70 percent "strongly") that the Coordinators provided teacher leadership without diminishing the collegial relationship within the seminar. Fellows found the Coordinators to be helpful either a lot (96 percent) or a little (4 percent) in providing information about unit writing deadlines; helpful either a lot (80 percent) or a little (20 percent) in providing information about guidelines for unit writing; helpful either a lot (85 percent) or a little (11 percent) in monitoring the process of the seminar through observation and conversations with seminar members; helpful either a lot (84 percent) or a little (13 percent) in providing information about the use of University facilities; and helpful either a lot (69 percent) or a little (27 percent) in facilitating discussion of Fellows' work in progress. Few Fellows found the Coordinators unhelpful in any respect. Overall they received considerable praise not only from Fellows, but also from seminar leaders, one of whom remarked that "the Coordinator kept things moving very well," while another called his seminar's Coordinator "super." One Fellow said, "The Coordinator called me throughout the unit's creation to make sure things were going okay and to answer any questions." According to another, "Our seminar Coordinator was also excellent. . . . [She] always offered help and advice to everyone." Others said,

Our Coordinator was outstanding this year — very conscientious and helpful. I especially appreciated her e-mails reminding us of upcoming events, deadlines, etc. She was always good-natured and a very enthusiastic learner herself.

[We had] a wonderful Coordinator who was always ready to answer any questions and smooth our path along the seminar. She has been very supportive and her experience has been essential to understand how to develop my entire unit.

To maintain current information on the program and to address any problems that arose, the Institute Director and Associate Director met monthly with the seminar leaders as a group. This also gave the seminar leaders, three of whom were conducting an Institute seminar for the first time, an opportunity to talk with one another about their approaches and experiences.

Rewards for Fellows

The seminars are the core collaborative experience of the Institute. In 2007, as in past years, most Fellows' responses to the seminar experience were strongly positive, at times enthusiastic. One returning Fellow found it "the most rewarding seminar I have taken." A first-time Fellow who began the Institute "with hopes that it would enhance my teaching" called the program "very gratifying. It was great to be able to really plan my own curriculum"; this Fellow cited "the support and constant feedback of my professor and seminar leader." Another Fellow said, "It was wonderful. . . . I developed a deeper understanding of the subject matter." According to another, the Institute provides "teachers with a place where they have the opportunity to study, write, and share

"The Institute provides teachers with a place where they have the opportunity to study, write, and share teaching best practices with teachers from diverse backgrounds." —Institute Fellow

teaching best practices with teachers from diverse backgrounds." Other Fellows said:

My students and I will be reaping the benefits of the seminar in which I participated this year for a long time to come. . . . [The seminar leader] designed and presented a seminar that is invaluable to me in the classroom. . . . The other teachers in my seminar collaborated very effectively, interacting with one another, and responding to the concepts and readings. . . . It has given me new and exciting ways of thinking about teaching my students.

I had an extremely positive experience. [The seminar leader] was wonderful to work with, as were the other teachers in my seminar. Before this year, I hadn't taken a single science course since high school. [The seminar leader] did a wonderful job of explaining everything to us, and I learned about many topics beyond those in my actual curriculum unit. Our seminar was extremely organized and friendly. Each week, a different Fellow presented on their unit. There was a very collegial atmosphere. . . . Our seminar Coordinator was also very helpful and always available as a resource. . . I had an excellent time.

My experience in the Institute seminar was fantastic. The seminar provided me with an outlet for education with people who also have a love of learning. My seminar leader was both funny and knowl-edgeable . . . and gave members an opportunity to discuss their particular approaches and share ideas. . . . I am looking forward to using what I have created next year in my classroom.

I am extremely thankful for the opportunity to be part of such an important facet of teaching and learning. I have always felt it necessary to continue my own personal education as a way to further the education of my students. The experience in my seminar has helped me to do this through the construction of my unit, which I am looking forward to teaching.

I had a wonderful experience.... Our seminar meetings were basically split in half. For the first half of the seminar my professor presented information which would be helpful to our units, making sure that we understood the science... and also pointing out any strong correlation to specific Fellows' units. The second half of the seminar was spent sharing our units.... We brainstormed ideas about how to adapt the lessons, no matter what grade level. We worked very well as a group.

In addition to the readings, we were asked to write a short narrative about how we would use the content of the chapter in the classes

"My students and I will be reaping the benefits of the seminar for a long time to come.... It has given me new and exciting ways of thinking about teaching." —Institute Fellow

"My experience was fantastic. The seminar provided me with an outlet for education with people who also have a love of learning." —Institute Fellow we teach. We often discussed these papers and it was helpful to hear how other teachers viewed the material.

The seminar leader used a variety of visuals. . . . [His] interaction and sincere efforts to understand our needs and interest were apparent in the feedback he provided throughout the development of the units. The seminar provided rigorous professional development that kept me cognitively engaged.

The Institute seminar this year was very valuable The seminar provided me with information to use in my classroom and serve as a developmental tool. . . . Also, the seminar refreshed information that I already knew. . . . My experience was wonderful. I felt comfortable with the group of people in the seminar. Everyone had the opportunity to express their ideas freely.

[The seminar leader] was a master at explaining difficult topics and he was very patient in answering all questions. We had the opportunity to talk with him about our units and . . . he was able to give me a focus . . . His reading of the units was extremely thorough and helpful. He was very concerned about our units and tried very hard to cover topics that were relevant to [our units] before the second draft was due. I really enjoyed the seminar and learned a lot.

The seminar included a cohesive and supportive group of Fellows with a strong and guiding seminar leader. With this type of support, I was encouraged to create a curriculum unit quite different than my original prospectus. Because of this change, I feel I developed a stronger unit. . . . I credit our seminar leader with terrific guidance and patience.

I appreciated how the seminar leader was able to explain the very complicated functions. . . in a way that schoolteachers could related and bring into the classroom.

Illustrating the Institute's demanding process of unit development and the interchange among seminar leaders and Fellows in this process, one Fellow wrote:

My experience was very good. The professor was very knowledgeable She was also very conscious of helping us to make our units pedagogically sound. . . . Her many suggestions for my unit made it a better teaching tool. . . . The teachers in my seminar were a very congenial and knowledgeable group, eager to offer suggestions to help others refine their units. There was a lot of humor as well as insightful thinking that led to many thought-provoking discussions. "The seminar leader was a master at explaining difficult topics and he was very patient in answering all questions. His reading of the units was extremely thorough and helpful." —Institute Fellow

The Yale faculty members who led seminars commented on the benefits they derived. Two examples follow:

The experience of teaching [an Institute] seminar for the first time was a significant benefit to me, as it challenged me to present material that I know well to a completely different audience.

It's just very important to communicate expertise toward public education and in turn to learn about pedagogy from the professional teachers. The discussion about how to explain concepts was very useful in terms of my own teaching.

Fellows cherished the opportunity to cross the artificial boundaries that often separate schools, disciplines, and grade levels. Several cited characteristics of what is known in education literature as a "professional learning community." One Fellow said, "The seminar was a great mix of colleagues from elementary, middle, and high school." According to others,

Although I teach at the elementary level, I was never intimidated by the high school science teachers who seemed to have much more background. . . . I also felt very comfortable asking questions, adding some information to discussions, and talking with other Institute members during the seminar.

The seminar has provided me with a stimulating group of peers. . . . The collaboration of each Fellow from various grade levels provided refreshing interaction with colleagues with similar goals to educate students.



The seminar on "American Voices: Listening to Fiction, Poetry, and Prose." (Seminar leader Langdon L. Hammer.)

"It's very important to communicate expertise toward public education and in turn to learn about pedagogy from the professional teachers. The discussion was very useful in my own teaching." —Seminar Leader Through the seminar we were also able to connect with other teachers who were writing about the same topic. We were able to share ideas and, most importantly, resources and teaching tips. It was great getting to know other teachers and bounce ideas off each other.

I learned a great deal of content from the seminar leader and other methods of teaching from the Fellows in the seminar. I will have benefited and my students will as well.

Several teachers spoke of the inspiration they discovered working together — and of their belief that their camaraderie contributes to retaining teachers in New Haven. As one put it, "The existence of the Institute affirms that the New Haven school system and Yale are committed to the teachers and the students of New Haven." Others said,

It has been useful and helpful to learn other professionals' point of view and their experiences in the classroom. Many have been able to give constructive advice and suggestions on how to improve curriculum units. This chance to meet and talk to other teachers of all grade levels has helped me visualize a more or less full picture of the educational system in New Haven.

The teachers in New Haven are extremely professional and supportive. I believe I would not have made it through this seminar if it weren't for their support and professionalism.

The Institute's participants and staff have been asked over the years whether the co-professionalism among Yale faculty members and New Haven school teachers, for which the program is widely known, is authentic. The mutual respect between Fellows and seminar leaders characteristic of the seminars attests to the collegiality on which the Institute is founded. One seminar leader described "an outstanding group of Fellows. . . . Several of them produced truly exceptional units." Further, "each of the Fellows contributed something important to almost every meeting." Another seminar leader said, "As a group, the Fellows were highly organized. . . always ready to volunteer for any assignment, and uniformly pleasant." Further, "Some were in really tough schools. No one complained about their students, and I came to admire their dedication and optimism."

Fellows, in turn, expressed admiration for their Yale colleagues and appreciation for this joint enterprise of teaching and learning. In typical reflections Fellows said their seminar leader was "extremely knowledgeable" and offered "encouragement and help," along with "comments on my curriculum unit [that] were most meaningful." Another who called a seminar "inspiring, challenging, and highly informative" regarded its leader as "masterful at drawing out Fellows in our discussions." Another said, "Participating in the Institute "I learned a great deal of content from the seminar leader and other methods of teaching from the Fellows." —Institute Fellow

The mutual respect between Fellows and seminar leaders attests to the collegiality on which the Institute is founded.

"It was a real pleasure to have a seminar leader as collegial, respectful, and nice as [ours was]. He always triggered discussions in a way we all had to think about the answer, instead of lecturing all the time." —Institute Fellow

Discussions in the seminar, while doing justice to the common reading, can also range widely over substantive and pedagogical issues relating to the curriculum units. was, as my students would say, an awesome experience. [The seminar leader] was everything I love in a teacher."

It was a real pleasure to have a seminar leader as collegial, respectful, and nice as [ours was]. He always triggered discussions in a way we all had to think about the answer, instead of lecturing all the time. The drafts were returned with detailed corrections and ideas to improve the curriculum unit, and he was always available for Fellows in case we needed help.

Our seminar leader was wonderful and presented the information in a clear and concise manner. . . easy to understand . . . no matter the grade level you taught. She was also very informative and helpful with the writing process.

[The seminar leader] was able to present the material in a way that was easy to understand and adapt for use in a classroom. [He] was very flexible and often altered [presentations] to match the units the teachers in the Institute were writing.

The seminar was great. [The seminar leader] was knowledgeable, approachable, and engaging. He had a great balance of seminar/discussion with lecture; his topics were very focused, applying directly to students of all ages. Further, he went into great depth as we close read multiple genres — a great model for what we can do with our kids.

Relating Seminar Topics to Curriculum Units

Each Institute seminar must balance the complementary and inseparable but sometimes competing demands for studying the seminar topic and developing applications of that knowledge for school classrooms. The Fellows, from elementary, middle, and high schools, are obligated to develop curriculum units that have some demonstrable relation to the seminar topic. Yet they are free to devise curricula that enter territory not covered in detail by the seminar. The curriculum units, therefore, have a diversity of subject and method that one would not expect in a regular university course. As a result, discussions in the seminar, while doing justice to the common reading, can also range widely over substantive and pedagogical issues relating to the curriculum units. Some comments by seminar leaders and Fellows quoted earlier have indicated that each seminar approaches these demands differently as seminar leaders strive for an appropriate balance.

The Institute encourages Fellows to incorporate in their curriculum units both subject matter and skills that are called for by the local curriculum framework — including an emphasis upon literacy — and assessed by the statewide Connecticut Mastery (CMT) and Academic Performance (CAPT) Tests,

Annual Report: Relating Seminar Topics to Curriculum Units

administered during 2007 in grades three through eight, and ten, respectively. Some Fellows commented on ways Institute-developed curriculum units help implement aspects of the district curriculum framework and create engaging material for students.

I have ... woven into my unit many activities that give my students opportunities to practice the four questions that show up on the Language Arts section of the CAPT. These activities will dispel some of the mystery around these questions and, I hope, give my students a better shot at reaching competency on the test.

I look forward to teaching this unit next year and feel confident that my students will enjoy the hands-on activities. It is my hope that they retain the standards . . . which can eventually help them in the CMT for both literacy and science.

My curriculum unit and Institute participation will have a positive effect on my teaching because I will be enthusiastic about teaching material that I developed [which] in turn will be more interesting to the students, giving them the opportunity to increase information retained that will help CAPT scores.

My students are going to greatly benefit from my unit, because it is going to be interdisciplinary. In addition, it is going to further prepare them for CAPT. Since participating in the Institute helped me to rethink all of my teaching . . . my students will greatly benefit from my new approaches. . . . The fact that my unit is going to correspond with science . . . is going to be very powerful for my students.

My seminar directly correlates with district standards that I am required to teach... I am now more knowledgeable... This will assist me in teaching my students concerning advances in science and technology in society.

The development of my curriculum unit will help me be better prepared when it is time to teach this component of the district curriculum. I was able to dig deeper into the content and find multiple resources.

My curriculum unit fits with one of the major standards. . . . Teaching the concept of bacteria and viruses in the coming school year will be easier because the research will be already done. Now I will be much more prepared.

I found that the writing of this unit was necessary when I spoke with other teachers about the statewide embedded task it is Institute-developed curriculum units help implement the district curriculum framework and create engaging material for students.

"The development of my curriculum unit will help me be better prepared when it is time to teach this component of the district curriculum. I was able to dig deeper into the content." —Institute Fellow

designed to address. Many of the biology teachers in the city needed to have more information to teach to this task; the unit I wrote will provide them with resources, background and activities that will lead into the task and help students complete it successfully.

Every year that I have participated in the YNHTI I have attempted to incorporate into my curricular unit any new initiatives that in the previous school year the NHPS prioritizes. Thus I view my unit as a way of synthesizing the goals and priorities of the district's initiatives into my area of expertise. This unit represents a sample that I can share with students, teachers and my school to demonstrate different ways of . . . increasing literacy and content knowledge. Not only does the unit integrate these initiatives, but it gives me a head start.

This unit, being interdisciplinary in scope, covers so many areas (reading, writing, social studies, map skills, computer learning, etc.) and teaching this unit will fit nicely within the literacy block time. It is appropriate to have third-grade students beginning some elementary research projects and to realize that there is a real purpose for the reading and writing they will do.

Most Fellows (93 percent) said there had been a successful balance between general study of the seminar subject and Fellows' units in progress. Many Fellows emphasized, as one put it, that "My colleagues, as well as the seminar leader, were very helpful in refining the unit." Another explicitly recalled "a good balance of content and unit sharing," while another said the



Fellow Chris J. Willems teaching his Institute unit to students at Wilbur Cross High School.

"I view my unit as a way of synthesizing the goals and priorities of the district's initiatives into my area of expertise." —Institute Fellow seminar leader "maintained just the right rhythm between reading assignments and writing for our units." Another Fellow said,

I found the seminars interesting and helpful to the formulation of my unit. . . . Our meetings were well constructed and geared toward each individual Fellow's needs.

Seminar leaders also addressed this point. One in the humanities perceived "a surprisingly good balance between the general study of the seminar and individual curriculum unit, thanks to the nature of our focus." Similarly, the leader of a science seminar who thought "the balance was good and appropriate" explained:

I covered a fair amount of basic science material each week. We also spent significant time . . . discussing the work of each of the Fellows, and that element helped to broaden the experience for all of the Fellows, and allowed us to push a little deeper in the areas that the Fellows chose to concentrate.

After the units were completed in July, they were compiled in a volume for each seminar. In October the volumes were deposited in the libraries of all elementary, middle, K-8 and high schools, so that all New Haven teachers might use them in their teaching. As in the past, the Institute prepared a *Guide* to the new units, based on authors' synopses and recommendations of the grade levels and school courses to which their units apply.

The Institute updated the *Index* of all 1644 units contained in the 181 volumes published since the program's inception in 1978. The *Index* and *Guide* were deposited in school libraries and distributed to the teachers serving as Institute Representatives for the schools. The new curricular resources were provided to district administrators responsible for curricula system-wide. And the Institute continued to replace volumes missing from school library sets, based on its annual survey of Institute resources located in all schools. As described below, the Institute has also published electronic versions of the units, *Guide*, and *Index* to make its curricular resources even more widely available.

Results for the Participants

Fellows in 2007, as in past years, spoke of the results of their Institute participation especially in terms of intellectual growth and renewal. Just as the opportunity to increase mastery of the subject one teaches was an important incentive for most Fellows (89 percent) at the outset, nearly everyone agreed (89 percent, 59 percent "strongly") that they had gained knowledge of their subject and confidence to teach it by participating in their seminar. Almost every Fellow (93 percent) agreed with the statement that the seminar helped with intellectual and professional growth; most (73 percent) strongly agreed. As one The Institute updated the Index of all 1644 units published since the program's inception in 1978.

"Participating in the Institute has been a very stimulating and refreshing experience. As a result, I will face new challenges with greater enthusiasm." —Institute Fellow

"Before attending the seminars, I was very nervous about teaching science. Now I have the knowledge and tools to actually teach the content." —Institute Fellow put it, "Participating in the Institute has been a very stimulating and refreshing experience. As a result, I will face new challenges with greater enthusiasm." According to another, "I needed to develop more scientific foundation for myself and for my students.... I did like stretching myself to learn ... things I would not have otherwise pursued." Another said, "I crave the intellectual stimulation that the seminar provides. I also believe firmly in having the opportunity to write some of the curriculum one has to teach." Another said, "I really learned a lot."

Many Fellows described the Institute experience — including the research for and writing of curriculum units — as having increased their professional confidence, subject mastery and morale, while nourishing their own as well as their students' curiosity. One whose seminar "increased my ability to instruct students in analyzing . . . written expression" said it also "increased my understanding of the different dialects that are used in my classroom." Another said the Institute "has increased my knowledge about Africa and the Middle East. . . . I have gained confidence in my ability to facilitate classroom discussion on more subjects." A teacher of special education "truly appreciated the opportunity to participate in the Institute as an avenue to my professional development in a major academic subject . . . that will be useful in my teaching." Another Fellow became "much more knowledgeable about the history of the earth, the thermodynamic cycle of the earth, and natural disasters." Another who found the Institute "invaluable" said "each seminar . . . led us closer to the goal of being able to deliver meaningful and contemporary understanding [of the subject] to our students." Other Fellows said:

The seminar has given me more knowledge and confidence in teaching science. Before attending the seminars, I was very nervous about teaching science. Now I have the background knowledge and tools to actually teach the content.

My unit will have a positive effect on my teaching. I will feel confident teaching my students a topic that I have great understanding in. I will be well versed . . . and already prepared with my classroom materials. . . . My own enthusiasm for the unit will translate into a positive experience for my students.

The Institute has given me a focus that I didn't have before. . . . Because of the curriculum unit I created . . . I will be able to not only improve my ability to confidently present the material, but to also include the students in a way I have not before. [Because my] unit covers two subject areas, I can actually be more comprehensive with both as a result of creating this teaching tool.

I feel so much more comfortable with the content material after having participated in this year's Institute. . . . I will have a lot more passion teaching my classes next year because I have a better grasp of the content. With more passion comes a more engaged student. . . . I'm expecting to see a marked difference in my students . . . with much more participation and engagement.

I feel confident to teach my class and know that I have resources . . . [and am] familiar with a topic that I know will interest my students. My unit will help me incorporate science into the curriculum that is taken up mostly with literacy. I believe that this unit will reawaken the natural curiosity that resides in all students. . . . This unit will also bring my students' parents into their education [through] some homework assignments.

The knowledge, wisdom and insights I gain . . . affect how well I teach. Teaching is not only a profession, it is a lifestyle. Teachers need to continue educating themselves and participating in workshops with colleagues to become better teachers. . . . The YNHTI instills much knowledge into participants. All teachers gain something from the seminars and take what they have learned back into the classroom. Being an educated teacher is key to helping students succeed.

I had come to the class with a very Eurocentric view of history. I was surprised to learn how the Islamic world was so powerful for a long period of time. I also learned many things about ancient trade, the history of paper and writing, and the ways that various religions gained dominance in various parts of the world.

While attending the seminars and learning about lung and heart functions, I have recently stopped smoking and become more health conscious.... This seminar has not only enriched my knowledge on the topics/concepts taught, but also my lifestyle.... The Institute has a way of invigorating my hope for and ideas about the coming year. Since we will soon be testing students' knowledge of science on the CMT I'm hoping tying the unit to some basic principles that students can absorb will increase their knowledge and enthusiasm.

The Institute has helped to upgrade my teaching skills. The camaraderie with colleagues is always helpful. . . We shared many suggested strategies and topics about our students. . . . Listening to others speak about their students' academics and home lives brought a fresh perspective. . . . All these experiences . . . will improve my teaching skills.

Fellows spoke, too, of their access to Yale facilities. From the Institute's inception, all Fellows have been full members of the University community, listed in the directory of faculty and staff, and granted use of facilities and serv-

"I will have a lot more passion teaching my classes next year because I have a better grasp of the content. With more passion comes a more engaged student." —Institute Fellow

"An important aspect of the seminar was our ability to use Yale's library to complete our research and expand our knowledge." —Institute Fellow

"We took a trip to the science lab — what an amazing resource! We got to see cuttingedge science." —Institute Fellow

Almost all Fellows said that they plan to encourage or assist other teachers in using the unit they prepared. ices similar to that of their Yale faculty colleagues. They receive a University identification card, computer account, and library borrowing privileges. For most Fellows (87 percent) access to Yale's academic facilities such as the library was an incentive to participate; 71 percent reported that membership in the Yale community had been greatly or moderately useful to them.

To acquaint Fellows with the facilities available to them the Institute offered special tours and orientations to the Cross Campus (now Bass) Library, Sterling Memorial Library, Beinecke Rare Book and Manuscript Library, University Art Gallery, and Center for British Art. These were in addition to the program talks and seminars themselves and were conducted by professional staff of each facility.

One Fellow wrote, "An important aspect of the seminar was our ability to use Yale's library to complete our research and expand our knowledge." This participant also appreciated the chance "to tour the Yale campus and learn." Another is now "more aware and comfortable with using Yale's facilities to enhance my teaching and the experiences of my students." Another said, "We took a trip to the science lab — what an amazing resource! We got to see cutting-edge science." Others said,

We went to the Beinecke library three times and the Art Gallery one time and those visits were very interesting. Yale offers us such rich resources, which our [seminar leader] made sure that we experienced with the understanding that we return there on our own or with our class at a later date.

What made the experience particularly enthralling was the availability of great historical artifacts at Yale. The artifacts brought history to life. Being able to see and sometimes touch these artifacts sends shivers down my spine, and I hope I am able to transfer the "shiver' to some of my students. . . . I learned how willing Yale is to accommodate local teachers, and I will bring them in the future.

Fellows see the results of the Institute as extending beyond their own classrooms, and beyond the teachers who have themselves personally participated in the seminars. Almost all Fellows said that they plan to encourage or assist other teachers in using the unit they prepared. More than half planned to do so with three or more other teachers. In all, Fellows planned to encourage or assist a total of 190 other teachers. One who will "be actively working in the area of professional development, both in my school and with teachers district-wide," said "the Institute work and the methods, strategies, and pedagogy I have worked on in my unit will be among the concepts" applied. Another looks "forward to sharing it with my department in the hopes that the information and activities . . . can become part of the curriculum." Similarly, another plans "to share the unit with other team members, so we can reach a larger base of students." Another whose "unit goal was to conceive of a way to better incor-

Annual Report: Results for the Participants

porate science into my curriculum as well as give my students a concrete foundation in a scientific process," continued, "My overall goal is to get more teachers to integrate more science and work together as grade teams within my school." Others — in the science seminars alone — said,

There are other teachers in my school that teach the same class, so I will be able to share the knowledge and resources that I have acquired with them. Since the unit is accessible via the Internet and the curriculum for this class is district-wide, my unit can also provide a resource for other teachers within the district that are looking for a different way to teach the material or additional activities. . . This unit is not specific to just the ninth-grade science class. . . It can be used in chemistry-based classes or an environmental science class. Teachers are able to expand or condense the information to suit their needs.

I will be teaching with a science co-teacher I look forward to sharing my new unit with this teacher as well as the science teachers in grades five through eight at my school. Because I have gained fresh knowledge and insights . . . I will be a more effective co-teacher. . . . I will also share my experience . . . with my colleagues in the New Haven school system when I attend system-wide curriculum meetings and workshops.

The publishing of units in a comprehensive book given to the school library will benefit other teachers . . . because they will have access to the unit and it is my hope the other teachers. . . will use this unit to create a yearly school health fair.

Fellows discussed the more extended influence the Institute has had, and will have, for them and their schools. One said, "My curriculum will be much better. . . . This way the curriculum is tested, well thought out and facilitated by an expert in the field." One who is "in constant dialogue with teachers from different disciplines who are teaching the same students" said, "I have correlated my unit with material being taught in social studies and English classes. The school curriculum will benefit." Another who is "required to develop social studies classes as electives" believed "the Institute has greatly helped in the development of these classes." Others said,

My curriculum unit will enhance my teaching greatly. . . . As a result, my students will learn a great deal. . . . [The unit] will engage students [and] fits into the curriculum well. American literature is the focus of the 11th-grade curriculum. I will be teaching at least three sections. . . . I have gained a lot of ideas, background information, and teaching strategies. . . . I am well prepared for the year. In addition, I feel I will be a great resource for other teachers.

"I will share my experience . . . with my colleagues in the New Haven school system when I attend system-wide curriculum meetings." —Institute Fellow

The seminar will influence all aspects of my teaching.... My students will benefit from someone finally being able to clearly explain this thing that all teachers ask them to have. My curriculum in my class will alter [as a result of] the seminar as well as the curriculum for the district as I am on the writing committee. [This will prepare] students for AP exams and college.

My school curriculum will be enriched with materials that can be considered literary and historical. . . . This is very important because the subject[s] are usually considered separate from each other by most of the teachers in my present school. . . . My work can demonstrate how literature and history are . . . interconnected.

My curriculum unit and Institute participation. . . will enable me to enhance the New Haven math curriculum with tangible exercises . . . [that] balance abstract concepts with real-world examples. . . . [This] will enable fellow teachers and administrators to appreciate the interdisciplinary learning . . . and teaching strategies that unite the school curricula.

As a person who is currently involved in . . . curriculum development for the district my experiences with the Institute have helped me write curriculum units for mass distribution. . . . I am also a mentor for teachers writing their BEST portfolios for the State of Connecticut. . . . The Institute helps me encourage the people I mentor to weave the big picture into what they are doing.

The curriculum unit has added to the existing school curriculum. From the unit done last year I was able to develop and use problems, generate significant tasks, and help students to explore the ideas presented. The students expressed interest. . . . I was able to use the unit . . . to start a discussion with other teachers . . . Since the unit could be used . . . in math and science I had the chance to discuss the content across these subject areas.

Every year we review separately the responses of first-time and of veteran participants because we want a high proportion of New Haven teachers to become Fellows and for the Institute to become a regular part of Fellows' professional lives. Both groups cite their own rewards, including increased expectations for themselves and for their students. One first-time participant "found it extremely rewarding professionally speaking . . . to experience and learn using topics that are taught in college but can also be taught at a lower level." Other first-time Fellows said:

This Institute allowed me to investigate an area of history, the Arab world, which I had little training in. . . This [seminar]. . . really fit my needs! The Institute has helped me become an important resource to other teachers.

"My curriculum unit and Institute participation. . . will enable me to enhance the New Haven math curriculum with tangible exercises." —Institute Fellow I... appreciated the guidance and support for writing my unit that I received from [the seminar leader] and the Fellows in my seminar. I felt completely welcome as a new participant in the Institute. I look forward to participating again.

I have found the experience to be satisfying both as a teacher of young children and as a [Fellow]. . . . One area of strength the Institute demonstrates consistently is communication. . . making my experience very positive, as I like to plan ahead. Another very helpful part of the seminar was our seminar Coordinator, a tremendous, positive source of information and encouragement.

After having participated as a Fellow. . . I feel motivated and excited to teach the unit I have developed. Originally I was a bit intimidated by the seminar topic but now feel very comfortable in teaching the subject matter Participation has raised my standards for my own students as well as for myself when creating lesson plans. I also found it exciting to learn new information that I was then able to pass on to my students. My students also thought it was "neat" that their teacher had to go to school to learn new things. They often asked me on Wednesday morning, what new things I had learned.

Experiences of First- and Second-Year Teachers

We also continue to pay particular attention to the results of the Institute for beginning teachers. Several of the 2007 Fellows who were first- or second-year teachers were among the most avid participants. They spoke of informal mentoring opportunities as well as gains in their subject knowledge and peda-gogical skills. One first-year teacher "believe[d] my curriculum unit and Institute participation will bring more enthusiasm to myself and the students. . . . Students will be motivated to learn." Additional comments from first-year teachers follow:

The development of my unit has dramatically changed the way I think about unit planning. Being around colleagues who teach similar subjects has provided me with an arsenal of new strategies I am excited to implement. . . . My unit . . . will, I believe, turn an otherwise dull and lifeless set of topics into an engaging series of challenges that will "hook" my students.

The curriculum unit can be easily tailored to the requirements of the school curricula. Students will learn. . . research techniques and organizational skills. . . . I am charged with the task of teaching students how to find answers instead of just giving them the answers. I believe this curriculum unit will allow for that and more. . . . The strengths of the Institute were many.

"I feel motivated and excited to teach the unit I have developed. Participation has raised my standards for my own students as well as for myself." —Institute Fellow

"The development of my unit has dramatically changed the way I think about unit planning." —Institute Fellow

My curriculum unit and Institute participation will have an extremely positive effect. . . . Aside from this unit, I have very much been thinking about incorporating many other content areas into every unit I teach. . . . The Institute is a powerful program. I could list strengths all day long.

I believe that my curriculum unit and Institute participation will have a great effect on my teaching, my students, and school curricula. . . . Students will enjoy the unit and maybe they will want to study the topic further. . . .[This is] a lesson that can be used by any other science teacher. . . . Being given specific times for things to be done kept me on track, and made the writing process less stressful.

Similarly, one second-year teacher "thoroughly enjoyed" the experience, especially praising the seminar leader for being "very knowledgeable of the material and present[ing] it clearly." Two second-year teachers of science (each of whom completed the Institute in each of their first two years of teaching) wrote:

The Institute provided me with many opportunities to strengthen my teaching. . . . The seminar has increased my awareness of how I can integrate more math. . . . The seminar also helped to clarify some misconceptions I had concerning . . . mechanisms at the cellular level. I also found that the other units . . . helped to provide innovative ways to approach some of the subject matter through artistic means. The seminar also provided me with key networking opportunities throughout the district and with Yale.

My Institute participation and curriculum unit have made me aware of how important it is to present interesting and inquiry-based learning experiences for students. . . . I am very prepared. . . . The extensive research that I did . . . has given me a large number of new teacher resources. . . . The Institute gave me needed practice in researching and devising curriculum units. It also enabled me to garner ideas from more experienced teachers. I felt supported.

A math teacher who completed the Institute in each of his first two years regarded his seminar leader as "strikingly informative and well prepared" and further observed,

The strengths of the Institute are clearly in providing the teaching and learning process with effective and efficient methods. The art and science of teaching will always require exploration, as the Institute encourages.

The Institute's teacher leaders — both school Representatives and seminar Coordinators — have been attentive to, and have begun to include, begin-

"The Institute enabled me to garner ideas from more experienced teachers. I felt supported." —Institute Fellow

Annual Report: Experiences of First- and Second-Year Teachers

ning teachers. In fall 2007 nearly half of the Representatives (nine of twenty) were individuals who initially had participated in the Institute during their first or second year of teaching in New Haven. A number of the Representatives volunteered to mentor new teachers in the New Haven Public Schools. In this role, they support other teachers both in the classroom and in the creation of their portfolios. In these ways the Institute has assisted with the induction and retention of new teachers and, in doing so, has strengthened and renewed its own leadership.

For returning Fellows, the rewards of participation do not diminish over time. The experience becomes cumulative, rather than repetitive or redundant. Many teachers report that the benefits increase as one gains experience as a Fellow. One thought "I become a better teacher every year in part due to the YNHTI. Things that I learn in the seminars . . . I pass on to my students." He continued,

Things I have learned in the past seminars have consistently made their way into my classroom. From the use of more effective verbs. .. to the interpretation of visual art ... each year the Institute allows me to add something to my teaching repertoire. This year I had a wonderful time with my students as we explored music and lyrics from the fifties and sixties. ... I ... have found different ways for them to discover their own voice through writing.

Others said:

I am the kind of teacher that needs to have an enormous depth and variety of sources . . . when . . . [a] teachable moment occurs. One of the best outcomes of my prior Institute experiences was that my inventory of source material increased enormously. . . . I have used my prior two units every year. . . . My students love the units and I love teaching them. Because I am so comfortable with the subjects and resource material for each I am able to be very facile . . . depending on the interests and abilities of my students.

The units I teach from my participation in the Institute are always a success, more so than other units. First, I am much more enthusiastic and knowledgeable... Secondly [I am] more strategic since I have had ... time to prepare and predict. Lastly, the materials I use are not what I have available, but what I plan for.

My curriculum unit and Institute participation [previously] made me reflect more on the purpose of my teaching and content of the curriculum. . . . Since the unit incorporated CMT-type questions and construction of written responses to those, it served as a sound addition to the school reading comprehension curriculum. . . . I will be seeking another opportunity to teach this unit. The Institute has assisted with the induction and retention of new teachers and, in doing so, has strengthened and renewed its own leadership.

"One of the best outcomes of my prior Institute experiences was that my inventory of source material increased enormously. My students love the units and I love teaching them." —Institute Fellow "I am one of those Fellows who really believe the YNHTI is the best existing program and that it really makes a difference in education." —Institute Fellow

"I saw a difference in my teaching this past year. . . The Institute helped me to become a better teacher." —Institute Fellow

Annual Report: The Program in New Haven

I am one of those Fellows who really believe the YNHTI is the best existing program and that it really makes a difference in education. I always try to design curriculum units that include the new information learned in the seminars, so my teaching style changes and develops. I always get new ideas from other Fellows that I try to use. . . . I believe the curriculum unit I have done for this year will impact my students in a positive way. . . . This interdisciplinary unit will hopefully motivate my students to make connections between subjects.

My prior experience gave me a lot of great information to use with my students. The two units I created . . . have become a staple in my classroom . . . that I can pull out and adapt to any level. Also, texts and other resources previous seminar leaders have used with us have translated well into my classroom. It is nice to use texts and materials that are given to educators with my students.

All the research that I do, analyzing sources in an effort to compile a list of suitable books and Internet sources for my students to use, gives me an expertise that allows me to be a good resource for both my students and teachers.

Writing my own curriculum unit through the Institute helped me to focus on my students and the methods which I felt were most effective for their instruction. I saw a difference in my teaching this past year as opposed to my first year. . . . The Institute helped me to become a better teacher.

Every year since 1990, when they became a regular part of the Institute, elementary-grades teachers have noted the particular advantages of the Institute for themselves and their curricula. For example, teacher of English to speakers of other languages identified "effective ways . . . of teaching one of the important components of writing." She said her students "will learn English and the subject matter of the unit," literature and writing. An elementary-grade teacher participating in a science seminar responded, "I know children love this topic. The unit stresses the underlying scientific principle of convection. . . . Teaching the broader concept will give this unit more meaning."

My experience . . . was extremely positive. Being a primary level teacher, my concern was taking complex information and using it to create a curriculum for young children. Also, choosing to take a science seminar was challenging. Although I am very interested in many areas of science, I do not have the educational background that would provide a strong foundation of information. These concerns waned as the seminar progressed.

Annual Report: Experiences of First- and Second-Year Teachers

[My school] has been through various evaluations. One of the common recommendations from evaluators has been for us to incorporate more science, social studies, and the arts. . . . This seminar has helped us to become familiar with . . . science that I can teach in a cross-curricular unit next year.

As already described, Fellows value the Institute's bringing teachers together across grade levels and often remark on resulting dividends to their classroom practice as well as to their morale. One elementary school teacher specifically appreciated having "teachers together to talk, share and learn when usually we are quite isolated from each other." She continued,

Talking with high school teachers this year really opened my eyes to some of the resources. . . . It is also wonderful to get feedback from other teachers who are aware of what your students are like, how they might respond to certain activities, and what other strategies might work for your students.

Seminar leaders, too, speak of what they gain from participation. They not only recognize their growing involvement in public education and the University's home community; some also perceive benefits to their own scholarship and teaching. Earlier in this report, we documented the mutual respect between Fellows and seminar leaders and quoted from a number of each. Beyond those accounts, a seminar leader who "genuinely enjoyed" the program said the Fellows "taught me how [the subject] is taught at different levels nowadays... Now I can understand why some of the freshmen I've taught recently were so puzzled by my syllabi." A leader in a different discipline similarly learned "a lot about teaching" from colleagues at the elementary and secondary levels. Another said,

It is beneficial to learn about what other teachers do, period, but especially teachers at other levels of the school system. The opportunity to teach the seminar gave me a good deal to think about.

Benefits for Students

The ultimate purpose of the Institute is to strengthen teaching in New Haven's public schools and in this way to improve student learning throughout the schools. Contrary to what some would expect of a partnership involving Yale University, the Teachers Institute intends to serve students at all achievement and performance levels. Fellows usually, in fact, write their units for students at more than one level. While nearly all of the Fellows (91 percent) reported that their new curriculum units were designed for their "average" students, three fifths (63 percent) reported that they were designed for their "advanced" students and as many (64 percent) reported that they were designed for their "least advanced" students. Fellows commented on these multiple audiences. As one observed, the unit "has required me to reflect and study the population I

Seminar leaders speak of what they gain from participation.

The ultimate purpose of the Institute is to strengthen teaching in New Haven's public schools and in this way to improve student learning.

was going to address." Therefore, "the modifications I have planned will allow me to adapt it to the most diverse needs inside any class." Accordingly, "students will have the opportunity to learn something different, new and exciting" in the "real role of 'researcher." Another believed "students will achieve more while having fun." Another said: "Many of my students are Muslim; now I can relate more to their personal and academic needs." And another: "This unit will encourage students to become the teachers educating their peers, teachers, staff and families about the importance of living a healthy lifestyle."

Another Fellow emphasized that, far from tangential, the Institute's curriculum unit will allow "me to expand the teaching I already do." It "will have a great positive effect on my students. It will motivate learning and stimulate their desire to work together." Further, students will "display their work to their parents and family members in our planned culminating activity," as the unit "will follow current school curricula and support learning objectives in an exciting way." Another said, "My students are going to love this unit! It's full of fun and hands-on activities [that] fit in perfectly with the school and district curriculum."

The plans of other Fellows illustrate the wide range of unit use anticipated in the schools. Many units highlight reading, writing, thinking, and speaking skills. One said the unit "will improve my students' ability to comprehend and analyze literature." Another thought students' "non-fiction writing will improve." A third "will begin next school year with set plans for achieving my goal of having motivated students who will increase their proficiency levels in literacy and language arts." Another said, "Students will . . . be able to take a critical stance" and hone "the skill of organizing their thoughts about a topic in essay form. . . to persuade their audience." According to another,



Students in a Fellow's biology class working on a project from her Institute unit at Hill Regional Career High School.

"My students are going to love this unit! It's full of fun and hands-on activities [that] fit in perfectly with the school and district curriculum." —Institute Fellow

Annual Report: Benefits for Students

This unit will make my students more aware of geography, history, world religions, and medicine. It will also improve their writing. . . . This unit was written with consideration given to both language arts and social studies curricula, and this encouraged me to remain constantly aware of New Haven's teaching objectives. The unit doesn't change the curricula but rather supports them.

One Fellow said, "The link between astronomy and math always benefits math students." Other examples in the sciences and math follow.

My students will benefit because I have learned new knowledge to share... Even more importantly I have learned a variety of new ways to present the material to them. I have learned how to create connections to knowledge they already have in order to explain how the body functions.

The unit I wrote will be very valuable.... I will use the content to supplement the curriculum. Each year I try to find different subject matter to teach after students have taken the AP exams. This curriculum unit will not only provide a new topic to teach but will also give students an alternative subject [to] consider as an area of study in college. The content of the unit can be used as subject matter when writing significant tasks [and] interdisciplinary-type questions.

To attempt to gauge the impact of this year's units in New Haven classrooms, we asked Fellows about the number of students to whom they planned to teach their new unit, and on how many days. Fifty of the Fellows planned to teach their unit to twenty or more students; twenty two said that they would teach their unit to fifty or more students. The total number of students to be taught a unit by this year's Fellows is more than 2500. Chart 6 indicates the lengths of time the Fellows planned to teach their units. For almost all Fellows, the unit is a significant part of their teaching plans.

As in past years Fellows were optimistic about the responses they anticipate receiving from their students to the material they had studied and developed in the Institute. Nearly all (94 percent) of the Fellows agreed that, as a result of Institute participation, they have a higher expectation of their students' ability to learn about the seminar subject. We have already quoted Fellows who spoke about what they gained, how their own enthusiasm for a subject would motivate students, and how they planned to involve students more actively in classroom learning. Others said:

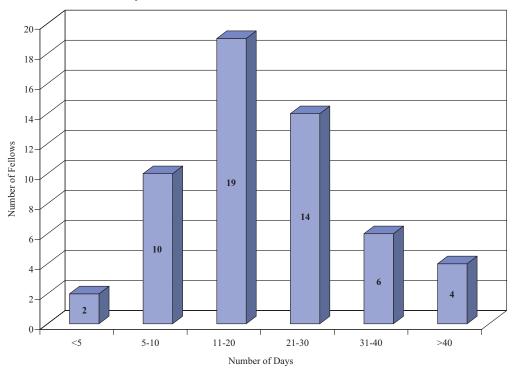
I will go into the teaching . . . fully prepared to help my students recognize, identify, name, and discuss the literary elements. . . . My understanding helps me demonstrate for them, guide them in prac-

"This unit will make my students more aware of geography, history, world religions, and medicine. It will also improve their writing. The unit doesn't change the curricula but rather supports them." —Institute Fellow

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Nearly all Fellows agreed that, as a result of Institute participation, they have a higher expectation of their students' ability to learn about the seminar subject.

Chart 6 Number of Days 2007 Fellows Plan to Teach Their New Unit



ticing themselves, and finally support them to work independently. Clearly this will help all of us be better. . . writers.

Students will benefit from the time spent on developing a unit that has gone through constructive criticism of fellow teachers as well as the head of the English Department of Yale University. My students will be able to interpret speeches given by U.S. presidents during the Cold War.

The culminating activity, when students will present their best pieces of writing to the audience, will arouse their pride in their work and, ultimately, will sustain their love of writing.

My teaching will emphasize a greater focus on incorporating primary sources when teaching history, as well as how to teach my students to use primary sources. . . . My curriculum unit will provide a very engaging learning experience for my students as well as refine their critical thinking skills.

My professor helped me to fine-tune my curriculum unit. . . . There are numerous topics of fascination for my students to learn about and I think the motivation will be high throughout.

Additional Fellows commented on ways their Institute experience will help students learning science. One said, "My unit is very project-based and

"Students will benefit from the time spent on developing a unit that has gone through constructive criticism of fellow teachers as well as the head of the English Department of Yale University." —Institute Fellow student-centered.... It could potentially be used as a model for new teachers." Another spoke of "renewed enthusiasm. If I am enthusiastic about the curriculum, it is more likely that my students will be as well." According to others,

The unit . . . will definitely be beneficial to my students and to me.... The unit will be engaging to my students especially since we will be starting with hurricanes and the water cycle during hurricane season.

Because I am personally invested . . . this enthusiasm will most definitely reach my students. I taught a unit this year with similar themes and my students were very interested in it, so I am anticipating the same reaction.

My curriculum unit and Institute participation will be extremely beneficial to my teaching because [it addresses] . . . adolescent obesity and the risk factors. . . . At the end of the unit the students must reiterate the material taught throughout the lessons . . . at the school-wide health fair.

We also asked Fellows who had participated in prior years to report on student responses they had actually observed when teaching units developed in the Institute. Their retrospective comments resembled their optimism about new units. One noted, "For the fifth year in a row I have advised a Model United Nations club which originated from a curriculum unit written for the Institute." Another said, "Last fall I taught a unit I had written the summer before. My students loved it and still retained the information from the unit in the spring." Several other Fellows' comments follow.

My enthusiasm in teaching these units, and the degree to which I have thought through what I am teaching, almost automatically makes them effective with students. On a few occasions other colleagues in my school also have taken seminars and written units that they have taught. When we, as colleagues, share this experience in my small school, it can be and, on occasion has been, electrifying.... The amount of discovery, thought, reflection, and work that goes into units establishes true ownership, making me determined to make them work. I am getting better at including language arts CAPT activities.

My students . . . were very active in answering questions on the content material from the previous lesson. The written responses to CMT-type questions . . . demonstrated analysis and understanding of the stories that they had studied. Their final projects. . . were highly reflective of the knowledge.

My students really enjoyed my unit. At the end of each year I give my students an evaluation of myself and my teaching strategies, "My enthusiasm in teaching these units, and the degree to which I have thought through what I am teaching, makes them effective with students." —Institute Fellow

"I give my students an evaluation of myself and my teaching strategies. Almost every student said they loved the handson science project the best." —Institute Fellow

"I taught my entire unit last year. . . . [It] was extremely successful. It has improved my curriculum greatly." —Institute Fellow and almost every student said they loved the hands-on science project from last year the best.

I am very aware of the needs of my students and the demands of my district in terms of curriculum. So the unit is . . . [a] useful tool to motivate my young learners to improve their literacy skills. . . . For example, I have found that my students respond well to journal writing. . . . It helps to cement their learning.

The clearest and most visible aspect of my participation is the joy and sense of accomplishment my students feel as they display their projects that are the direct result of completion of the unit. My students have built [a replica of Shakespeare's] the Globe Theater, performed a play, wrote their first non-plagiarized piece of non-fiction, and wrote and edited a newspaper from a year [in history]... The word is out that my classes are meaningful and fun!

The results of my prior participation for my students in learning geometry added an essential hands-on exercise: assembling pentagons and hexagons to create a geodesic dome. . . . [This helped] demystify the abstruse calculations.

The units and portions of the units that I have taught have been very successful . . . something that I am excited to teach. . . . The Institute allows a teacher to prepare a unit and activities that are challenging and fun.

Due to my participation in the Institute my students were more interested in the class subject matter pertaining to the unit I created, my curriculum was more rewarding for me to teach because it was my own and the school had a decrease — regardless of how small — in students' disruptive behavior due to lack of interest.

I taught my entire unit last year. . . . [It] was extremely successful. The class was a wonderful learning experience, and something I would like to continue teaching in the future. It has improved my curriculum greatly.

I used . . . part of the unit with my AP biology students I enjoyed teaching something I knew so intimately well! The students seemed genuinely interested and a few thought they might consider a career in biotechnology.

I was able to use the unit with my AP class. . . . The students responded positively to the . . . activities. . . . The human anatomy directly correlated with my AP biology course curriculum. . . . The students enjoyed this activity that forced them to . . . creat[e] a life-

size diagram helping them to learn the location of major structures within their central and peripheral nervous systems. I received positive feedback from other faculty who passed by the students' work.

Several Fellows expressed appreciation for units their colleagues had written earlier. One plans "on utilizing the many units that other Fellows have written in the past on various subjects." Another has "gained valuable ideas and instruction from the collection of YNHTI units available at our school library."

Those units are among the extensive resources available on the Institute's Web sites, which are described later in this report.

Participants' Conclusions Overall

We asked Fellows about the extent to which several features of the Institute had been useful to them. As shown in Chart 7 below (reading again left to right from the most useful to the least useful), very few Fellows said that any aspect of the Institute had not been useful. In fact, except for computer assistance — which many did not use — each aspect of the Institute was regarded as useful to a great or moderate extent by well over half of the Fellows. Nearly all responded that favorably about the knowledge gained about their subject (94 percent), about the guidelines for writing a unit (93 percent), about their seminar leaders (89 percent) and interaction with other Fellows (89 percent), and most also about the seminar bibliographies (74 percent). Ninety-five percent of Fellows rated the program overall as useful at least to a moderate extent; most (73 percent) called it useful to a great extent.

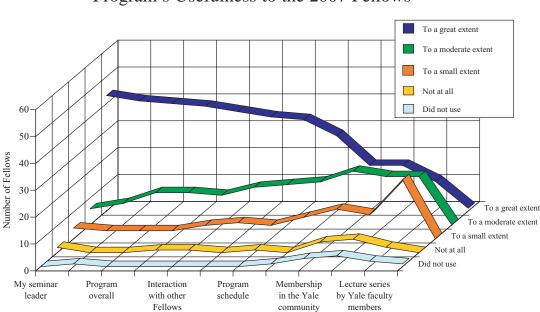


Chart 7 Program's Usefulness to the 2007 Fellows

> Each aspect of the Institute was regarded as useful to a great or moderate extent by well over half of the Fellows.

"I am very impressed and supportive of the Institute and its mission and I will gladly serve it again when needed." —Seminar Leader

"In the long run, the level of instruction goes up, students in New Haven schools learn more, and the community benefits." —Seminar Leader We asked the Yale faculty who led seminars to offer conclusions about the strengths and weaknesses of the Institute. Overall, the leaders were highly favorable. One said, "I am very impressed and supportive of the Institute and its mission and I will gladly serve it again when needed." Another who called the Institute "a positive experience" was "certain that all of the [Fellows] came out of the seminar with new knowledge." He continued, "The provision of a schedule of meetings that are well timed with critical milestones in the [seminar] is an invaluable aid." Others said:

The Fellows love the Institute, prize the opportunity, and take it very seriously. I liked my experience very well. . . . Seminar discussion was lively and productive and collaborative.

The strength of the program lies in the fact that in some sense the program is controlled by teachers and their representatives. This of course fosters a sense of belonging. It also means that Fellows learn about the program from their colleagues. They know whom to talk to without being intimidated.

The Teachers Institute is such a good idea. . . . [Its seminars] allow Yale faculty to do what they do best: teach, whether in the sciences, social sciences, or the humanities. . . . In the short run, teachers at different grade levels learn what resources Yale has . . . engage with Yale faculty, and have time to develop a unit that improves their teaching. In the long run, the level of instruction goes up, students in New Haven schools learn more, and the community benefits.

We also asked Fellows about the strengths and weaknesses of the Institute. One emphasized "the delight of working with the seminar leaders. Mine have been great thinkers, big-picture thinkers, who model wonderful classroom strategies." Another said, "I have no complaints." The writing of curriculum units and "Yale University staff and facilities" were recognized, as was the program's structure; "A strength of the Institute is its organization." Certain Fellows cited the Institute's larger purpose. One said, what "keep[s] me coming back" is "the ability to interact with others that are interested in strengthening teaching in the school system." Others commented:

A strength of the Institute is the overall sense of collegiality. . . . It provided many opportunities for educators to engage in professional conversations, to share teaching strategies, and to offer suggestions . . . [to] common problems.

The program is . . . exceptionally well organized. The Institute's school representatives and contacts that I have dealt with do a wonderful job serving as liaisons between the Institute and [other] teachers. . . . Coordinators provide ample support and guidance in preparing curriculum units and monitor the process. The biggest strength of the Institute . . . is the opportunity it provides teachers to fine tune their curriculum development to create an engaging unit that also focuses on our students' strengths and weaknesses. . . . [Typically] this type of professional development does not exist.

The Institute's greatest strength is clearly the process of developing the unit. By forcing teachers to justify and deeply plan a curricular unit, it helps us make much more thoughtful and informed decisions about how we teach.

The Institute is constantly reevaluating itself, which adds to its strength... Knowledge offered by the seminar leaders was again top notch... The process of professional development should be a model for the nation. It is definitely how teachers should prepare and therefore how students should learn.

The program overall is extraordinary. It allows New Haven teachers to immerse themselves in a rich, stimulating, intellectual environment at one of the country's best universities.

The Institute . . . prepares teachers to write a curriculum unit that they and others can use. . . . The Institute allows teachers to take staff development into their own hands. . . [and] delve into a subject Most times elementary teachers just know surface knowledge about many subjects. . . . The Institute gives control back to the teacher.

Most comments were highly positive, with one saying "The weaknesses of the Institute are few if any." There were a few complaints about the schedule, about aspects of a seminar, or about one of the talks in the lecture series. Beyond that, any deficiencies cited tended to concern the challenge of fulfilling the program's considerable requirements; as one wrote, "It is a great deal of work." Still this Fellow thought "the Institute process went very well," praised "the talks [as] useful," and said,

The major advantage of new teacher participation is the opportunity to work with well-qualified and experienced colleagues who can inform and influence our teaching.

Two first-time Fellows said:

Throughout the process I felt supported and encouraged. . . . I always looked forward to Tuesdays . . . [and] what I learned in these sessions. I greatly enjoyed the opportunity to give a lesson from my unit to my seminar and I also enjoyed the lessons presented by other Fellows. . . . Promptness was emphasized which

"The process of professional development should be a model for the nation. It is how teachers should prepare and how students should learn." —Institute Fellow

allowed everyone's time spent in each session to be treated with respect.

It was an excellent professional development experience. . . . I was pleasantly surprised at the amount of support I received from other elementary school teachers [among] other . . . Fellows, and also the seminar leader.

In evaluations, almost all the Fellows said they would participate (70 percent) or might participate (25 percent) in the Institute in one or more future years. These proportions are comparable to most prior years. Only three individuals said they would not participate in the future. Among those who said they might participate, explanations from two Fellows were typical: "It will just depend on my schedule and available time"; and "I would determine my level of participation based on topics being covered."

Electronic Resources and Assistance

For a number of years the Institute has explored ways computing can assist with its work. In earlier years the Institute provided teachers computers to use in schools where none were otherwise available to them. It encouraged Fellows to learn about and use e-mail. And the Institute put the New Haven Public Schools' curriculum framework online before the district was able to do so. It placed Fellows' curriculum units online on a gopher server before the Internet existed in its present form.

More recently, as computers have become nearly ubiquitous; as teachers' use of e-mail has become routine; and as Fellows' knowledge of computing has increased, the Institute mainly has assisted Fellows in formatting curriculum units in a manner consistent with its mechanical specifications so that units can readily be put on the Institute's Web site. Because of the benefits of having units online, the Representatives had decided that, beginning in 1999, Fellows must submit curriculum units and *Guide* entries in electronic as well as printed form. Still, in 2007 some Fellows sought help with applications from getting started with computing, e-mail, and the Internet, to using the Internet in research and teaching, and using Institute resources online.

The Institute employs graduate and undergraduate students to offer this assistance by phone, by e-mail, or in person. In addition, Fellows may use computing facilities available to members of the University community across the campus. The electronic resources and services include opportunities to learn about and use computing. Each Fellow receives a University network ID and password for use of databases and other electronic resources available only to members of the Yale community.

With staff from the University Library, the Institute conducted a workshop for Fellows on March 21. This session featured an overview of search

The Institute employs graduate and undergraduate students to offer this assistance by phone, by e-mail, or in person. engines; exploration of curricular resources through the Institute's Web site; and guidance on how to use online research tools of the Yale libraries, including databases and journals. One Fellow said,

The assistance I received last year enabled me to proxy my home or school computer to access Yale's Orbis system. I have been very pleased with the access I have to the Yale library. . . . Last year's information also gave me tips on how to use search engines and how to log in to the computers on campus.

The Fellows also sought computer assistance individually with word-processing, formatting and file handling for the preparation of curriculum units. A few asked about incorporating tables and images into what would become the printed version of their units. Several of the Fellows (16 percent) made use of assistance in person, two (4 percent) by phone, and three quarters (75 percent) by e-mail. For over half (62 percent) of the Fellows availability of computer services was an incentive to their participation. Most who did not use computer assistance said they did not need it because they had previously acquired sufficient computer skills or had other resources at home or school. A few said they did not do so because of time constraints. Some found assistance unnecessary because mechanical specifications Fellows received, as one said, "were very clear."

Nearly all who did take advantage of the assistance commented favorably. One said the assistants were "incredibly helpful and efficient in their responses and suggestions regarding the technical components of my unit." Others wrote,

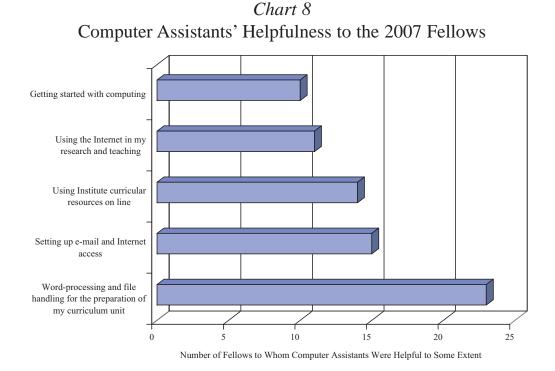
Computer assistance was extremely helpful in answering unit-formatting questions as well as ensuring all Fellows had the requisite access to Yale's IT networks. Keep up the great (and friendly!) work!

I did use the computer assistance. . . . I found it extremely useful in completing my unit. I found access to online professional journals invaluable in the research phase of preparing my unit.

Returning Institute participants described how they had gained proficiency and confidence in computing over time. One said, "I have used the assistance in the past, and it was so good that I did not need it this year."

For the fourth year the Institute provided each seminar with its own email group to facilitate communication. Some seminar leaders chose also to use Yale's classes server for posting and viewing documents. One Fellow noted a seminar leader "put all of her seminar . . . information online so that I could access it." "I found access to online professional journals invaluable in the research phase of preparing my unit." —Institute Fellow

"I have used the assistance in the past, and it was so good that I did not need it this year." —Institute Fellow



Of those using the additional computer assistance the Institute provided, ten found the assistants helpful in getting started with computing; fifteen found them helpful in setting up e-mail and Internet access; fourteen found them helpful in using the Institute's curricular resources online; eleven found them helpful in using the Internet in research and teaching; and twenty three found them helpful in word processing and file handling for the preparation of a curriculum unit. (See Chart 8.)

Institute Centers for Curriculum and Professional Development

In 1996 the Institute undertook with the New Haven Public Schools a new activity designed to broaden and deepen its efforts to strengthen teaching and learning in the schools. It offered several elementary, middle, and high schools the opportunity to establish an Institute Center for Curriculum and Professional Development within their buildings. Five such Centers were established in 1996. Over subsequent years the Institute has articulated and refined the concept of the Centers, prepared policies and procedures for them, and designed, constructed, and delivered special furnishings to them.

The purpose of Centers is to provide Institute resources to assist teachers in implementing school plans that address district goals. The Institute aims to situate the Centers around the city, targeting especially the larger schools, so that a majority of New Haven teachers will have a Center in their school or at a nearby school. During 2007, six Centers were in operation. They were located at two elementary schools (Columbus and Davis Street), one K-8 school (Fair Haven), and three high schools (Cooperative Arts and Humanities, Hill Regional Career, and Wilbur Cross).

The purpose of Centers is to provide Institute resources to assist teachers in implementing school plans that address district goals.

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These Centers are not permanent installations but must be regularly renewed. A Center may remain so long as the school has a need and desire for it, and can then be moved to another school. Moving Centers around the school district increases exposure to the Institute and ensures their resources will be located where they will be most beneficial each year. The Steering Committee, which makes these decisions, developed criteria for targeting sites: A suitable site must be of sufficient size, with a critical mass of participants and adequate leadership. It must be able to rely upon a favorably disposed school administration and an appropriate school plan, and be consistent with the aim of allowing most New Haven teachers to have a Center at their school or nearby.

The Institute and the New Haven Public Schools jointly established Institute Centers to support the system's curriculum reform efforts. The Centers help carry out school-based plans to address the District's "Kids First" goals for student learning, whose strategies include enhanced standards-based curriculum and instruction; "professional learning communities"; parent and community involvement; and improved physical condition of schools. The Centers create in schools a place conducive to the kinds of conversations teachers have with one another and with their Yale colleagues in Institute seminars. Centers increase the visibility and use of Institute resources and include teachers who have not before been Fellows. Fellows using Centers disseminate Institute-developed curriculum units and encourage other teachers to assist with planning Institute seminars and to participate in those seminars.

The Centers operate from attractive and properly equipped rooms in the schools, where the Institute installs special furnishings designed by Kent



Institute Center for Curriculum and Professional Development in Davis Street School.

Combining utility and symbolism, these pieces have a solidity and elegance in harmony with the tradition of design at Yale University, and an evident durability suggestive of the Institute itself.

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Bloomer, Adjunct Professor of Architectural Design at Yale, who has led three Institute seminars. Bloomer designed for each Center two pieces of furniture that remind the users that a Center is a way of bringing teachers together as colleagues, and that it is a function of the mutual presence of Yale in the schools and the schools in Yale. Combining utility and symbolism, these pieces have a solidity and elegance in harmony with the tradition of design at Yale University, and an evident durability suggestive of the Institute itself. One piece is a round table, with a hole in the middle, which provides the "center" about which eight people can sit. The center of the table is filled with a circular design, the Yale-New Haven Teachers Institute logo multiplied as a continuous fret, which is done in tile and set in cast metal for permanence. The second piece is a very high bookcase, designed to hold volumes of the curriculum units and other Institute materials, with hand-plated inlay work across the top that carries the same continuous fret depicting the Institute logo. A banner continues the logo of the fret into the room. Most Centers contain at least one computer so teachers can easily use the Institute's Web site and other online resources.

Schools interested in becoming a Center site must submit an application that is approved by the principal and school planning and management team, who agree to support and provide necessary resources to the Center. In 2007, a group of Center leaders, including one teacher from each of the six Center schools, met periodically to provide peer review of the Centers' operations and to exchange ideas on effective Center activities. These meetings were held January 24 at Career, April 5 at Wilbur Cross, May 23 at Career, October 23 at Fair Haven (preceded by an open house for teachers at that school), November 14 at Cooperative Arts and Humanities, and December 19 at Career.

The meetings provided an opportunity to discuss reports from each Center and to orient teachers new to the Center concept. They explained connections between the hundreds of Institute-developed curriculum units and the academic standards and curricular priorities of the New Haven Public Schools and placed emphasis on ways the Centers can support and engage beginning teachers.

Examples from a high school and an elementary school, respectively, illustrate Centers' activity. The Coordinator of the Center in Career High School (which had seven Fellows in 2007) wrote,

An integral element of Career's academic plan involves the students' acquisition of a liberal arts education. The Center provides a plethora of units that cover the diversity that a liberal arts education endeavors to provide. The Center also facilitates the staff to develop learning objectives that often include combining the disciplines. . . . Career's YNHTI Center has been focused on promoting the Institute by creating discussions with colleagues. . . . Our Center is presented in a way that highlights the work of Fellows in the building with their units on display. . . . The Center was relocated last year to a section designated for teaching resources in our media center and considered a haven for teachers to plan and discuss teaching strategies. . . . In addition, the Center has been used by several interns to assist them in developing ideas on how to construct lesson plans that were in alignment with district standards.

The Coordinator at Career High School continued,

I have also observed new teachers use the units to generate ideas about their lesson plan design and resources.... The Teacher Book Club uses the space to converse about various readings we choose ... to enhance our perspective concerning our profession and how we can implement better practices. The book club is made up of roughly 10 teachers from various disciplines who read the literature on their own time. ... The Center's activities have helped to advance the district goals by fostering a collegiality between staff members to share the talks they have attended and the various ways in which to create a unit that fits the district goal of promoting high academic achievement by creating interdisciplinary collaboration.

At Davis Street School, three teachers participated in Institute seminars in 2006; one who was a first-time Fellow became the school's Institute Representative that fall and continued in that role as the 2007-08 academic year began. By the end of 2007, again three teachers were planning to participate as Fellows in the spring ahead. Reflecting on the year past, the Center Coordinator wrote:

Student work created based on unit implementation is showcased throughout our school and used as a reference point for fellow instructors. . . . Students create wonderful narratives and research projects. . . . Teachers and visitors often share how impressed they are concerning student work YNHTI curriculum units have been included as a required part of Davis' Comprehensive School Plan. . . . That's what it's all about — supporting one another with valuable information and resources at our fingertips! Because of such interaction coupled with quick access to computerized and book-bound resources, teachers buy in. . . . The Institute [is] a worthwhile professional learning community. . . . Students are immersed in fun-filled, out-of-the box learning experiences; completed units and test grades show that implemented units have proven effective.

Regarding parents, the Center Coordinator at Davis said,

Many parents are made aware of the availability of YNHTI curriculum units online and make use of bibliographic information "The Center's activities have helped to advance the district goals by fostering a collegiality and ways to create a unit that fits the district goal of promoting high academic achievement."

—Institute Fellow

"The Institute [is] a professional learning community. Students are immersed in funfilled learning. . . . Completed units and test grades show units have proven effective." —Institute Fellow

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contained in many of these resources. . . . Parents are urged to [adopt] many of the literacy and research activities contained in these units at home, as a complementary support to classroom instruction. When student projects — created based on the implementation of YNHTI curriculum units — are showcased at our school, many parents come out to experience their children's work; they are astounded by the work and knowledge gained. . . . Our Center activities and overall involvement help to make engaged learning happen, advancing our school's plan and adhering to our district's goals. . . . A new parent in our school noted that when she observes the bulletin boards, she can pinpoint classes seem to be doing something extra — something creatively stimulating!

Preparation for the Program in 2008

From June through August the Institute identified and approached the 49 teachers who would serve during the 2007-2008 school year as the 20 Representatives and 29 Contacts for their schools. During 2006-2007, 56 teachers had served in these ways, 19 as Representatives and 37 as Contacts. Representatives were selected according to recommendations of the teachers who served as seminar Coordinators and conversations they had with teachers who had served as Representatives in the past, with other Institute Fellows, and with some school principals. Because as a group the Coordinators had become acquainted with the Fellows in their seminars, they could consider all current Fellows for leadership positions, as they sought to ensure continuity while also including teachers who had not before served in these positions.

The number of Representatives and Contacts is proportionate to the number of schools at each level. As the number of K-8 schools within the district has grown, the number of Institute leaders from those schools has increased. In 2006-07, 34 of the Representatives and Contacts (61 percent) were from elementary or K-8 schools, two (4 percent) represented middle schools (of which there were only two by fall 2006), three (5 percent) represented transitional schools, and 17 (30 percent) represented high schools. In 2007-08, 31 (63 percent) were from elementary or K-8 schools, one (2 percent) was from a middle school, three (6 percent) represented transitional schools, and 14 (29 percent) represented high schools. Every school had at least one Contact or Representative to serve as a conduit for information to and from the Institute throughout the school year. Of the Representatives and Contacts, about 20 percent were black non-Hispanic, 78 percent were white non-Hispanic, and 2 percent were Hispanic - percentages that approximate the demographic composition of teachers in the district at large, though Hispanic teachers were underrepresented when compared with previous years (See Table 1, page 30.)

Representatives meet twice monthly from September through December and weekly in January and February. They receive honoraria for this work and agree in advance to participate in the program they are planning; Contacts per-

Through the Representatives and Contacts, the Institute ensures that all teachers throughout the school district may have an effective voice in shaping a program of curricular and staff development in which they will then have the opportunity to take part.

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form many of the same functions but are not required to participate in meetings or commit to applying to be Fellows. Through the Representatives and Contacts, the Institute ensures that all teachers throughout the school district may have an effective voice in shaping a program of curricular and staff development in which they will then have the opportunity to take part.

The Representatives' first meeting for the new school year was on September 4. On September 25, a reception for Representatives and Contacts was held. Between meetings, the Representatives communicate by phone and through school visits with the Contacts for whom they serve as liaison to the committee of Representatives. In these ways, teacher leaders compile information from, and distribute information to, colleagues throughout the New Haven schools.

During the fall, as many as 129 teachers expressed interest in the seminars being planned for 2008. By December the Representatives had decided to offer six seminars: "Controlling War by Law: Averting War, Adjudicating Conflicts between National Security and Civil Liberties during War, and Pursuing Accountability and/or Reconciliation after War," led by Robert A. Burt, Alexander M. Bickel Professor of Law; "Storytelling: Fictional Narratives, Imaginary People, and the Reader's Real Life," led by Jill Campbell, Professor of English; "Pride of Place: New Haven History through Its Art and Material Culture," led by Edward S. Cooke Jr., Charles F. Montgomery Professor of American Decorative Arts; "Representations of Democracy in Literature, History and Film," led by Annabel Patterson, Sterling Professor of English Emeritus; "Forces of Nature: Using Earth and Planetary Science for Teaching Physical Science," to be led by David Bercovici, Professor of Geophysics and Chair, Geology and Geophysics Department; and "Depicting and Analyzing Data: Enriching Science and Math Curricula through Graphical Displays and Mapping," to be led by William B. Stewart, Associate Professor of Anatomy (Surgery).

Local Program Documentation and Evaluation

Annual evaluations of the Teachers Institute indicate that it assists teachers and schools in specific ways, and that the results are cumulative. (See in particular *A Progress Report on Surveys Administered to New Haven Teachers, 1982-1990* [New Haven: Yale-New Haven Teachers Institute, 1992].) In the fall of 2007, the Institute updated its continuing study of New Haven teachers who have been Fellows. This study reveals the proportion of eligible teachers from each New Haven school and department who have participated, the number of times Fellows have completed the program, and whether Fellows have remained in teaching in New Haven.

Of the 641 New Haven teachers who have completed the program successfully at least once between 1978 and 2007, two hundred three (203), or 32 percent, were teaching in New Haven in October 2007. (Please see the

Annual evaluations of the Teachers Institute indicate that it assists teachers and schools in specific ways, and that the results are cumulative.

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Appendix for a list of all Fellows from 1978 through 2007.) An additional 23 (4 percent) held full-time administrative posts in the school system, most (14) as Principal or Assistant Principal; nearly all (22) of these 23 individuals were teachers when they first participated as Fellows. There were 34 (5 percent) other former or current Fellows serving in capacities including Instructional Coach (11); Counselor (10); Library Media Specialist (12); and President of the New Haven Federation of Teachers (1). Most (25) of these 34 individuals, including 10 of the 11 instructional coaches, were classroom teachers when they first became Fellows; two have continued as Fellows by team-teaching their curriculum units with full-time classroom teachers.

Overall, 260 (41 percent) of all Fellows since 1978 were still working in the New Haven Public Schools. (Two other former Fellows were on leave.) Of the 203 Fellows who were teaching, 159 were teaching in the six core subject areas in the humanities and the sciences. The two core fields with the largest number of Fellows were English (30 individuals) and science (24). Of the forty-four Fellows teaching other subjects, the largest number taught special education (28, or 4 percent of all Fellows since 1978).

As Table 2 shows, 7 percent of current elementary grades teachers (in elementary, middle, and K-8 schools) in New Haven have completed successfully at least one year of the Institute. As Table 3 shows, 25 percent of New Haven high school teachers of subjects in the humanities and sciences, 25 percent of transitional school teachers, and 17 percent of middle grades teachers also have done so. A number of teachers have participated for two to fifteen years. Of the 203 Fellows still teaching in New Haven, about half (49 percent) have participated in the Institute once, 28 percent either two or three times, 16 percent four to six times, and 7 percent (14 individuals) between seven and fifteen times. Of the 34 Fellows in the other roles of Instructional Coach, Counselor, Library Media Specialist, or — in a singular case — President of the teachers' union, almost half (47 percent) participated once; ten (29 percent) participated two or three times; three (9 percent) four to six times; and five (15 percent) participated between seven and fourteen times.

Of the 23 New Haven Public Schools administrators who have participated as Institute Fellows, two thirds (70 percent) participated once or twice; five (22 percent) participated three to five times; and two (9 percent) participated nine and twenty-three times, respectively. Having former Fellows in positions ranging from Assistant Principal and Principal at the school level, to Associate Superintendent, Director of Instruction and Curriculum Supervisor at the district level, has made the Institute more visible, and has encouraged teachers to participate. In fall 2007, six of the district's forty-five schools had former Institute Fellows as principals; an additional five schools had assistant principals who were former Fellows. Overall, about one quarter of New Haven schools had former Institute Fellows in these administrative roles. One example is Wilbur Cross High School, an Institute Center school, whose principal and an assistant principal had been Fellows and which regularly has several

Overall, 260 (41 percent) of all Fellows since 1978 were still working in the New Haven Public Schools.

About one quarter of New Haven schools had former Institute Fellows in these administrative roles.

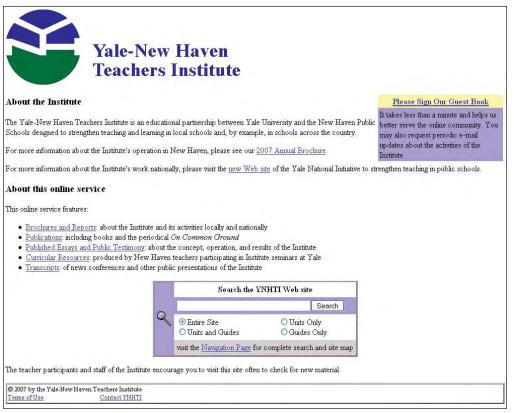
teachers participating as Fellows. At another Center school, Cooperative Arts and Humanities High School, both assistant principals were former Fellows.

In 1996 members of the National Advisory Committee had suggested that the Institute engage in fuller documentation of its work beyond the seminars themselves, and of the wider effects of its program in the school system. They believed they were hearing from teachers and staff about many valuable results of the Institute's work that should be documented in forms that could be made more widely available. The Institute is therefore now documenting its various activities more extensively. This Annual Report itself is a massive compilation of information and statistics drawn from a variety of sources, including the questionnaires completed by Fellows and seminar leaders; reporting by school Representatives and Institute Center leaders; the tracking of all previous Fellows; statistics from the New Haven Public Schools; demographic analyses; minutes of meetings; project reports; reports to funders; and entries in the Institute's Web site guest book. The work that provides material for this Report extends over the entire year, and the Report is available online.

THE INSTITUTE AND INITIATIVE WEB SITES

Electronic versions of the Institute's curriculum units and other publications are available at the Yale-New Haven Teachers Institute and Yale National Initiative Web sites (yale.edu/ynhti and teachers.yale.edu). The New Haven Web site played an important role during the National Demonstration Project, as a link in its network of information and a model for the Web sites of other Teachers Institutes, and it remains essential as the Yale National Initiative proceeds. The full texts of almost all the curriculum units written in New Haven between 1978 and 2007, plus an *Index* and *Guide* to these units, are available online to teachers in New Haven and elsewhere. Information about the New Haven Institute (its brochures and most recent Annual Reports) is also available, as is the text of its periodical *On Common Ground*, which contains articles regarding school-university partnerships and is intended for a national audience.

The Initiative also inaugurated in February 2004 a new Web site, which includes links to the New Haven Web site and to those of the other League Teachers Institutes. Many of the publications on the New Haven Web site, including PDF and HTML versions of the periodical, are available on the national Web site. That site also features extensive information on the Teachers Institute approach, the activity of the National Initiative, and news from the League of Teachers Institutes.



The full texts of almost all the curriculum units written in New Haven between 1978 and 2007 are available online.

Yale-New Haven Teachers Institute Web site located at yale.edu/ynhti.



online forms to solicit information from teachers, schools, colleges and universities interested in the Initiative. In recent years the New Haven site has been used by more and more people in many parts of this country and around the world — teachers from both public and private schools (including Fellows from other Teachers Institutes) school and university administrators, parents,

A guest book on both

Web sites invites comments and suggestions. The national Web site also invites comments on specific curriculum units and provides other

Yale-New Haven Teachers Institute Web site located at teachers.yale.edu.

volunteers, university professors, high school students, graduate students, librarians, military personnel, home-schoolers, local policy-makers, and others researching or having an interest in education. We estimate that from its inauguration in June 1998 through December 2007, this Web site has received approximately 50 million "hits." The annual number of unique visitors has increased from about 700,000 in 2002 to more than one million in 2007, when these visitors registered some seven million hits.

In 2007 we continued to hear from individuals in many countries. A partial list would include elementary and secondary school teachers, university professors, college students and researchers from Argentina, Australia, Belize, Canada, Germany, Ghana, India, Iran, Kenya, Liberia, Malaysia, Mexico, New Zealand, Nigeria, Philippines, Switzerland, Trinidad and Tobago, the United Kingdom, Uruguay, and Zambia. The comments that these online visitors submitted were nearly all complimentary, and a reminder of one way the Institute is participating in Yale's globalization.

An educational consultant in Mexico City called the site "a very useful reference to compare mutual challenges in a wide range of educational endeavours." An English language teacher from Montevideo, Uruguay wrote, "From your Web site I get some extra readings for my students. Thank you for being there." A teacher at Ngaruawahia High School in New Zealand said of a curriculum unit, "I'm looking forward to giving it a try particularly as the . . . students I teach have difficulty in reading as English is often their second language." A student teacher from elsewhere in New Zealand — Mount Maunganui College in Tauranga — wrote, "I think it is marvelous. . . . Your resource is so helpful to new teachers who may not have complete knowledge

"I think it is marvelous. . . Your resource is so helpful to new teachers who may not have complete knowledge of subject content or experience with lesson unit planning." —Teacher from New Zealand

of subject content or experience with lesson unit planning." A community worker "dealing in environmental awareness" in Trinidad wrote, "I'm new to the site. I hope to get background information towards doing a paper. I would visit this site in the future." A "grandfather just trying to help his grandson" contacted us from Bristol in the U.K. An English financial firm manager in Pfaffikon, Switzerland wrote, "Working towards the fulfillment of my original plan to continue my teaching career in the United States. Enjoyed greatly the piece . . . concerning Native Americans." A public school teacher for the Halifax School Board in Nova Scotia, Canada who is "also a part-time graduate student" said, "I was looking for a textbook, and the search engine had some of the search terms in a unit from your Institute. I was impressed."

From Africa came this response from a postgraduate student of public health at the University of Ibadan in Nigeria: "I am carrying out research on educational intervention to childhood blood lead poisoning and I found your [curriculum unit] very useful and relevant." Further, "I thereby request for permission to adapt the curriculum as the training manual for my research work to suit the African Nigerian condition." We heard also from the director of Child Life Services at the Moi Teaching and Referral Hospital in Eldoret, Kenya. A student at the University of Liberia in Monrovia wrote, "I have been looking for a Web site like this because I am a student of economics." Also regarding Liberia, the director of Hope for Children of Africa thanked us "for the excellent plans on the Web site. My non-profit is creating lesson plans for a village school in Liberia . . . and this site saves us from reinventing the wheel." The material "will be a great inspiration for the children who are healing from a very ugly civil war."

From eastern India — Assam — a faculty member at Cotton College who is "also a research scholar with IIT [the Indian Institute of Technology] Guwahati" observed, "I find your site useful." To the south in Hyderabad, a school administrator who is on "the teaching side of radiology and ultrasound" at a diagnostic center said, "After seeing your Web site I am interested to know more about the subject." And an Iranian university lecturer from Urmia, "cut off from the rest of world by the crazy conduct of my country's leaders," wrote, "I wish to use your site to improve my job."

From around the U.S. came similar statements concerning a wide range of disciplines. Nearby, a teacher at Connecticut's Middletown High School using "a unit on Connecticut wetlands" praised it as "an excellent curriculum unit." A teacher at Middletown's Riverview Hospital for Children and Youth wrote, "I love this Web site for the lesson plans, the research, and professionalism. Plus lots of variety that I can use." From a financial analyst "active in education budget issues" in Madison: "Very thoughtful initiative and very needed. I look forward to learning more about your initiatives and successes." A New Haven teacher commented, "This is a wonderful Web site, especially for teachers who are looking for resourceful ways to enrich their curricula. Keep up the great work and I hope to join the team this year!" "My non-profit is creating lesson plans for a village school in Liberia . . . and this site saves us from reinventing the wheel." — Director of Hope for Children of Africa

"I love this Web site for the lesson plans, the research, and professionalism." —Teacher from Connecticut

A public school teacher in Shelburne Falls, Massachusetts said, "This site is a valuable resource for inspiration and models." Also from Massachusetts, an education resources librarian at Salem State College wrote, "Thank you. . . . It is a great Web site for teachers. I will pass on the information to the education faculty." An English teacher at Providence Country Day School in Rhode Island responded, "I was searching for some ideas for lessons on paragraph structure and essay structure, and found your [unit] which I think makes a lot of sense." This teacher said, "I am looking for a coherent approach to developing students' writing skills, and I will definitely explore your site for resources." A student at Vermont's Goddard College "found the curricular guides for writing, short stories, and adolescent studies extremely helpful in suggesting resources and supplying annotated resources for crafting my own year-long Senior Study Proposal."

From New York alone came a number of evocative responses. A Brooklyn public school teacher wrote, "I was looking for reading materials to enrich my advisory class which currently concentrates on learning mathematics and I was fascinated with your curriculum materials [which I] found not only useful, but also very interesting." From a "teacher-librarian" at a Bronx public school: "The curriculum information provided by the Institute is valuable in developing lessons for and about African American students from K-6." The education director of Dugmah in Manhattan wrote, "We do science, arts, tutoring/remediation, educational entertainment, Judaic education and test prep." Of the Institute's Web site: "Very nice work. I will be sure to direct teachers to your materials." And a teacher at the Park School of Buffalo said, "I often refer to these plans to get ideas to structure my own. The teachers who create these are intelligent and creative. I especially like plans that juxtapose divergent ideas, themes, etc."

A public school teacher at the Vine Middle Performing Arts and Sciences Magnet School in Knoxville, Tennessee wrote, "Well-written resource that I continually refer to in my own lesson planning." A librarian with the Digital Library of Georgia at the University of Georgia in Athens sought permission "to use a unit on 'American Women who shaped the Civil Rights Movement."' A public school teacher specializing in "science in a rural Georgia alternative school" in Rome wrote seeking "new strategies that might further assist both students and myself. I am interested in topics such as dropout prevention and . . . at-risk students." A Columbia County, Georgia public school teacher said, "This is the best Web site I have encountered. I have searched for hours on the Internet and have not found as much information as I have here in about two hours." Moreover, "I particularly like the guide and unit site and that you have placed these units as age appropriate." A public school teacher in Saint Louis, Missouri "really liked your article on overpopulation." From La Plata, Maryland, a public school teacher wrote, "Wonderful links for lessons for the social sciences. Connecting to the real world is of utmost importance in the 21st century!" A teacher in Smyrna, Delaware who was "very impressed" sought "permission to use some of [the] lessons for a recently created course on

"I often refer to these plans to get ideas to structure my own. The teachers who create these are intelligent and creative." —Teacher from New York

"This is the best Web site I have encountered." —Teacher from Georgia

African American literature." A "student becoming a special education teacher" at Kutztown University in Pennsylvania said, "This is a great Web site."

A public school teacher in Naples, Florida "love[d] the [Institute's Web] site" and "wish[ed] we had one." An alternative certification student teacher in Nicholasville, Kentucky said "Excellent!" A teacher in Fort Lupton, Colorado said, "This site is amazing. I have looked for poetry ideas for my elementary teachers for weeks. What a rich resource you have created. Thank You!" A teacher at the University of Northern Colorado in Greeley called the Institute a "fabulous resource." From Wichita West High School in Kansas came this response: "I am an AP English Lit. teacher — wonderful lesson plans." A student teacher at the University of Wisconsin-Madison wrote, "I was excited to find this site!" We heard also from "a 7th and 8th grade science teacher at Maplewood High School in Cortland, Ohio" and from this faculty member at the University of Cincinnati: "I'm relatively new to your Web site, but I'm excited about it. . . . to help prepare pre-service middle school teachers." An administrator at Indiana Wesleyan University in Marion wrote to request permission to use a unit on 'Promoting Diversity in Elementary School Curricula' ... for students in our Master's of Education degree program." A public school teacher in Skokie, Illinois said one "unit was really interesting and helpful. . . . I'm curious about resources you have available for teaching young children. Thanks!" A Chicago teacher was "energized by ... [a] poetry unit. I would like to use many of her lesson ideas with my fourth-grade class."

From around California, too, many educators and others wrote us. A public school teacher in Santa Ana said, "I teach ninth grade English honors and this Web site has been an incredible asset in that I am able to use the resources on this site to design deeper, more analytical literature exercises for my students." Further, "I find this site not only provides excellent lessons but information that I learn from, as well." She continued, "I was so impressed with the resources here that I shared the site and sample resources with my English department. The Honors, IB, and AP teachers were excited and extremely impressed." From Newport Beach, a public school teacher "found your information on theater and drama to be EXCELLENT!" An official at the San Diego County Office of Education who was "presenting a lecture on historical novels in K-12 classrooms" planned to "use your wonderful article as a resource." A teacher in Redondo Beach had "used your student short story activity sheet for several years. . .very effective in middle school. . . thank you." A computer engineer in Milpitas praised a science unit whose "contents were very impressive and informative." A parent in Newark "happened on this site doing a search for Spanish language reading material we can use to introduce our daughter to Spanish." And a homeschool teacher in Berkeley said, "The unit . . . was great. . . . I think it's useful for grades higher than first. We used it also as an entry point to research more about subtopics it brought up."

From the Pacific Northwest, an instructor at Washington State University in Pullman wrote, "I am an interdisciplinary Ph.D. student. . . . Your Institute's

"I would like to use many of her lesson ideas with my fourthgrade class." —Teacher from Chicago

"The Honors, IB, and AP teachers were excited and extremely impressed."

> —Teacher from California

"I just came across the curriculum units and am glad that your site has made them available to all. Thanks! I am a firstyear teacher, and I can use all the help I can get or find!" —Teacher from Oregon work . . . fascinates me. . . . I found your Web site very informative and easy to navigate." A water quality consulting engineer in Spokane found the site "Very informative. I was searching for sources of lead contamination in the environment on the Web, and found a teachers' guide on your site." A Seattle public school teacher wrote simply, "Great lesson plans!" A Portland, Oregon teacher said, "I just came across the curriculum units and am glad that your site has made them available to all. Thanks! I am a first-year teacher, and I can use all the help I can get or find!" From El Paso, Texas one correspondent was so eager to use one of the Institute's non-commercial resources that she was "willing to pay for it if necessary." A San Antonio teacher encountered the Web site while preparing "for my senior English literature class" and was "very impressed with its organization, materials, and content." She continued, "I would like to use your material in my classroom, particularly your tests and study guide questions. ... I develop, research, write, and instruct all material" for the high school grades. "Your site is a wonderful resource! . . . Please keep up the great work!"

The Institute's Web site elicited other intriguing comments. A librarian at an Anchorage, Alaska elementary school contacted us about curriculum units on folk tales.

A lawyer in Antioch, Illinois "Enjoyed the lesson . . . on utopian communities. . . . Much appreciated and very well presented." A "grandmother" in Detroit, Michigan "printed the information on promoting diversity in elementary school curricula." A documentary educator at the William Winter Institute for Racial Reconciliation at the University of Mississippi wrote, "Great curriculum resource! . . . I am linking to your curriculum guides from our Web site (actually, that of a regional alliance that we helped convene and continue to manage). Part of our mission is to support curriculum development and access for teachers, especially on issues of race and Civil Rights history." A "community activist-after school program director/teacher in Grenada, Mississippi called the Institute site "an excellent Web site, a fantastic resource." And a detective with the juvenile division of the Los Angeles Police Department sought "information [from an Institute Fellow] regarding youth programs and crime solving [fiction]. . . . Thanks for your help."

Clearly the curriculum units prepared by Fellows of the Yale-New Haven Teachers Institute continue to demonstrate their usefulness in many different ways for teachers and others who are engaged within a wide range of subjects and who have received many kinds of preparation.

UNIVERSITY ADVISORY COUNCIL

Yale faculty members advise and assist the Institute through the University Advisory Council and its Executive Committee, both appointed by the Yale President. (For members of these bodies, see Appendix.) The Advisory Council guides the general direction of the program and acts as a course-ofstudy committee so that the Institute can certify Fellows' work to institutions where they may be pursuing advanced degrees. The Council also advises the Yale President on the Institute and, more generally, on matters concerning the University's involvement with the schools locally and with public elementary and secondary education nationally.

The University Advisory Council meets once each year, the Executive Committee at least once each semester. The Co-Chairs of the Council communicate frequently with the Director between meetings. Members of the Executive Committee and the Steering Committee meet jointly from time to time to share information about their respective activities and to explore appropriate ways of working together.

In 2007 the Executive Committee met on February 28, April 19, and October 25. On February 28 the Committee met to review the Institute's local and national offerings for 2007, to hear a report on the Co-Chairs' and Director's February 2 meeting with President Levin to discuss next steps for returning the Institute offices to campus, to begin to plan the annual spring Council meeting with President Levin, and to explore the direction in which the National Initiative has been, and should be, evolving. Acting in its capacity as the Institute's course-of-study committee, the Executive Committee reviewed and approved the twelve local and national seminars to be offered in 2007.

On April 19 the Committee met to plan the agenda and main questions for the University Advisory Council meeting with President Levin held on May 2. The Committee also discussed the results of an April meeting with the Provost's Office concerning the return of the Institute offices to campus. When the Co-Chairs and James Vivian earlier talked with President Levin about the Council agenda, he had agreed it would appropriate for the Council to address topics about how we proceed with the National Initiative. The Committee decided that we should ask, first, "what should be the strategy of the National Initiative to establish Teachers Institutes in states around the country" and, second, "what types of institutions and which specific institutions should be involved in order to implement this strategy?" A following question would be "how, by virtue of the institutions we involve in establishing new Teachers Institutes, are we increasing the capacity of the League of Teachers Institutes to carry out this work?" The Executive Committee talked also about research that we might conduct to aid in the selection of cities and universities for new Teachers Institutes. They suggested we comprehensively research state education policies conducive to Institutes.

The Council advises the Yale President on the Institute and, more generally, on matters concerning the University's involvement with the schools locally and with public elementary and secondary education nationally.

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On October 25 the Committee met to discuss the funding the University has said it would provide for teacher professional development in the sciences, office and meeting space on campus, membership on the University Advisory Council and its Executive Committee, local and national seminars for 2008, and Federal legislation that would support the development of new Teachers Institutes.

With regard to membership on the Council and the Committee, the Executive Committee agreed to recommend to President Levin that he invite Stephen Pitti to become a member of the Executive Committee, that he ask Jules Prown to serve another five-year term on the Executive Committee, and that he ask John Rogers, Bruce Russett, and Margretta Seashore to serve another five-year term on the full Council. The Committee also agreed to recommend that the President invite two recent seminar leaders, David Bercovici and Martin Gehner, to serve five-year terms on the Council.

On May 2, 2007 the full University Advisory Council held its thirteenth annual meeting with President Levin, attended by 30 of 49 members. James Vivian opened with a report. He noted this is the thirtieth year the Yale-New Haven Teachers Institute has offered seminars for New Haven public school teachers, and the third year the Yale National Initiative to strengthen teaching in public schools has offered seminars for teachers from established Teachers Institutes and from cities exploring the creation of a new Teachers Institute. In 2005 and 2006, the Institute had offered eleven New Haven and nine national seminars for 118 Fellows and 108 National Fellows.



University Advisory Council meeting, May 2007. (Clockwise from left: President Richard C. Levin, Sarbani Basu, Peter Salovey, Gary W. Brudvig, Margot Fassler, Bruce M. Russett, Werner P. Wolf, Dudley Andrew, Robert J. Wyman, Stephen J. Pitt, Paul H. Fry, and Roger E. Howe; Director James R. Vivian; Mary E. Miller, Kurt W. Zilm, Ian Shapiro, and Howard R. Lamar.)

The full University Advisory Council held its thirteenth annual meeting with President Levin.

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In 2007 the Institute offered five seminars for New Haven teachers and seven seminars for teachers from ten cities in nine states. We increased the number of national seminars from five to seven to accommodate a larger number of National Fellows in order to recognize and support the efforts of cities that are making demonstrable progress toward developing a Teacher Institute. Council members were provided a list of cities participating in the National Initiative and a list of the New Haven and national seminars into which their teachers have been admitted. The national seminars carry the same expectations as the New Haven seminars, though they meet on a different, more compressed schedule.

Drawing on our continuing experience in working with other cities, during the past year, Vivian said, we have updated, refined, and reorganized the Understandings and Procedures that define the Teachers Institute approach. We are publishing these in a new Manual that also includes the steps and a timeline for establishing a new Teachers Institute. The Understandings are organized as fifteen core Articles that constitute the Institute approach as they have been enumerated, elaborated, and clarified over the past three decades.

To conclude by laying a foundation for the questions on which we seek the Council's advice, James Vivian reminded the Council of its key role since 1999 in developing the strategy we have been pursuing in our work nationally. Following the advice the Council provided in 2000, we planned the National Initiative while developing an ambitious, \$64 million proposal that would have allowed us to establish additional Teachers Institutes around the country over twelve years by making regrants for their planning and imple-



University Advisory Council meeting, May 2007. (Top left photograph: Left to right: Murray J. Biggs and Thomas R. Whitaker. Top right photograph: Left to right: Sarbani Basu and Gary W. Brudvig. Bottom left photograph: Left to right: Sarbani Basu, Peter Salovey, and Gary W. Brudvig. Bottom right photograph: Left to right: Stephen J. Pitti and Jonathan D. Spence.)

James Vivian reminded the Council of its key role since 1999 in developing the strategy we have been pursuing in our work nationally.

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mentation, in the way we had established Institutes during the National Demonstration Project. In 2001, the Council advised us on the organizational structure for our work in New Haven and nationally, and recommended the Initiative be closely identified with the University, hence its name the Yale National Initiative. In 2002, the Council advised us on what should be the "non-negotiable principles" in our approach, as we envisioned establishing new Institutes. When the major grant we sought was not forthcoming, after the Council's advice in 2003, we identified local and regional foundations that had both an interest in teacher quality and the capacity to assist with the establishment of new Institutes. In those locations we researched school districts and colleges and universities to determine whether local educational policies and resources would be conducive to the formation of a new Institute. In these ways, we targeted the cities with which we are now working.

Following the Director's report, the Council discussed two questions in particular:

- A. What should be the strategy of the National Initiative to establish Teachers Institutes in states around the country?
- B. What types of institutions and which specific institutions should we seek to involve to implement this strategy?

After lively discussion of both questions and many suggestions on each, in closing the meeting Mary Miller remarked on all the practical assistance the Council had provided. President Levin said that he thought it was one of the best and most interactive meetings we have had.



University Advisory Council meeting, May 2007. (Left to right: Sabatino Sofia and President Richard C. Levin.)

ON COMMON GROUND

On Common Ground[®] is published periodically by the Yale-New Haven Teachers Institute. It is concerned with the development of teachers and of their curricula through school-university partnerships. Its title, which derives from that of the first book on the Institute's work, *Teaching in America: The Common Ground*, is intended to suggest that university and school teachers across the country have a strong mutual interest in the improvement of teaching and learning in schools. The periodical focuses on the issues that have arisen and continue to arise in university-school partnerships of many kinds throughout the United States.

The circulation of the periodical is over 15,000 nationwide and includes the following, in addition to numerous teachers and administrators at Yale University and in the New Haven Public Schools: the Chief State School Officers; superintendents of school districts enrolling 5,000 or more students; all college and university presidents and chancellors and chief academic officers; deans and directors of education, continuing education, and graduate programs at four-year institutions; directors of community services and governmental relations at four-year institutions; heads of many corporations, foundations, and professional organizations involved in education reform; education policy makers at both the federal and state levels; members of the print and broadcast media who cover education; and a growing list of individuals who have asked to receive it. The periodical is mailed also to individuals in schools and colleges across the country with whom the Institute has worked since the inception of its dissemination activities in the early 1980s.

Each number of On Common Ground has a topical focus, developed in one or more lead essays, and also deals more briefly with other matters of current interest. Number 1 featured an essay by Secretary of Education Richard Riley on "The Emerging Role of Professional Development in Education Reform." Number 2 featured an essay by Vito Perrone on the historical context of schooluniversity collaboration. Number 3 featured an essay by Robert Reich, Secretary of Labor, on the role of partnerships in "Creating New Paths to the Middle Class." Number 4 was devoted to "Partnerships in Science and Technology," Number 5 to "Partnership and the Arts," Number 6 to "Educational Organization and Change," Number 7 to "Diversity, Partnership and Community," and Number 8 to "Building Partnerships for Our Children." Secretary of Education Rod Paige contributed the feature article for Number 9, a "Special Issue on Urban Partnerships." Senator Joseph Lieberman wrote the feature article for Number 10 on "Establishing Institutes Throughout the Nation." Others who have written articles for On Common Ground include: Bruce M. Alberts, Roland S. Barth, Ernest L. Boyer, Lauro F. Cavazos, Terry Knecht Dozier, Elliot Eisner, Thomas Furtado, James Gray, Kati Haycock, James Herbert, Arthur Levine, Gene I. Maeroff, Deborah Meier, John Merrow, Thomas W. Payzant, Sherry H. Penney, Jay L. Robinson, Sophie Sa, Charles S. Serns, and Suzanne SooHoo. Until his death in 1995, Fred M. Hechinger contributed a regular column "On Partnership."

Its title is intended to suggest that university and school teachers across the country have a strong mutual interest in the improvement of teaching and learning in schools.

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"Making Connections" was the theme, and the process of establishing those links among teachers, university faculty, and administrators across the nation was the topic of the feature by President Richard C. Levin. In early 2007, the Institute published online and mailed about 15,000 printed copies of Number 11 of *On Common Ground*. This number included articles by faculty about seminars they have led and by Fellows about student response to curriculum units they have written, and also contained accounts of the progress being made in developing Teachers Institutes in certain cities. "Making Connections" was the theme, and the process of establishing those links among teachers, university faculty, and administrators across the nation was the topic of the feature, "A Wonderful Team Enterprise," the welcoming remarks addressed by President Richard C. Levin to the participants in the Intensive Session in New Haven in July 2005.

The first section, "Connecting Seminars and Classrooms," contained statements by those leading the 2005 national seminars, followed by reports from Fellows on the subsequent teaching of their units in their own classrooms and, in some instances, the classrooms of other teachers. The second section, "Connecting Schools and Universities," provided a rather detailed example of how a new Teachers Institute may be established. Four of the key participants in establishing the Teachers Institute of Philadelphia described that process from their own points of view: the President of the University of Pennsylvania, the Chief Academic Officer of the School District of Philadelphia, a university faculty member who has provided significant guidance, and the Planning Director of the Teachers Institute. The third section, "Connecting Cities Through the League," included reports from four cities in which Teachers Institutes have not yet been established: Charlotte, Richmond, Santa Fe, and Wilmington. Authors included a Regional Superintendent and five National Fellows who explained their enthusiasm about the possibility of establishing new Institutes in their home cities. The final section, "Learning from the Team Enterprise," shifted the focus to what can be learned by those who direct Institutes and lead their seminars. It begins with interviews with the Director of the Pittsburgh Teachers Institute and leaders of seminars in Pittsburgh, Houston, and New Haven. It then includes more extended pieces by other faculty members who have led seminars in those three cities. Each provides specific testimony as to the various ways in which the leading of a seminar itself becomes a valuable learning process.

The school and district officials contributing to this issue included Ann Blakeney Clark, Regional Superintendent for Charlotte-Mecklenburg High School, and Gregory Thornton, Chief Academic Officer of the School District of Philadelphia. Presidents Amy Gutmann of the University of Pennsylvania and Richard C. Levin of Yale University contributed articles on "The Penn Compact and the Teachers Institute" and "A Wonderful Team Enterprise," respectively. University and college faculty members included Paul H. Fry, Mary E. Miller, Sabatino Sofia and Thomas R. Whitaker of Yale, Michael Field and Cynthia Freeland of the University of Houston, Karen Goldman of Chatham University, Janet Stocks of Carnegie Mellon University, and Rogers M. Smith of the University of Pennsylvania. Contributors from school faculties included Susan H. Buckson-Greene of Atlanta, Clary W. Carleton of

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Richmond, Jeffrey C. Joyce and Elizabeth R. Lasure of Charlotte, Kimberlee Penn Erazo of Santa Fe, Rita Sorrentino of Philadelphia, Cary Brandenberger and Raymond F. Theilacker of New Castle County, and Eric Laurenson and Elouise White-Beck of Pittsburgh. Teachers Institute Directors Helen S. Faison of Pittsburgh and Alan J. Lee of Philadelphia contributed. In sum, this issue described the conduct and results both of national seminars and seminars within the League of Teachers Institutes[®], the value of those Institutes from the perspectives of school and district leaders, and the potential for further dissemination nationally of the Institute approach.

President Amy Gutmann of the University of Pennylvania wrote of the Teachers Institute of Philadelphia that it "is leveraging integrated expertise and resources to have the greatest systemic impact on public education in Philadelphia." Anticipating a future Teachers Institute for Charlotte, Ann Blakeney Clark called it "a key teacher retention strategy," with "the Yale National Initiative a shining national beacon of professional development worthy of thoughtful study by public school districts across this nation."

In the fall of 2007 the Institute began to prepare issue Number 12, on "Teachers Institutes for the Nation," to be published in 2008.

TEACHERS INSTITUTE LEGISLATION

In 2007 Connecticut Senators Joseph Lieberman and Christopher Dodd and Representatives Rosa DeLauro and Joseph Courtney introduced the Teacher Professional Development Institutes Act. A similar measure had received the unanimous, bipartisan support of the Connecticut delegation in the 109th Congress. These latest bills, S. 2212 and H.R. 3209, would authorize \$30 million over five years, making Federal funding available for the establishment of as many as forty new Institutes. Passage of this legislation would provide a tremendous boost to the Yale National Initiative, which aspires to establish an exemplary Teachers Institute in most states. It is timely: It complements the provisions of the No Child Left Behind Act that call for a highly qualified teacher in all core subject classrooms. It provides an innovative way for colleges and universities to help strengthen teaching of subjects in the sciences and the humanities in the nation's schools. These Institutes would enable state and local education agencies to learn from local experience about this tested approach as they reformulate their policies and practices for teacher professional development.

In introducing the legislation in the Senate, Lieberman said,

Many agree that teacher quality is the single most important school-related factor in determining student achievement. . . . It is imperative to invest in methods to strengthen our present teaching workforce. . . . Positive educational achievements occur when coursework in a teacher's specific content area is combined with pedagogy techniques. This is what the Teacher Professional Development Institutes Act strives to accomplish. The Yale-New Haven Teachers Institute has already proven to be a successful model for teacher professional development as demonstrated by the high caliber curriculum unit plans that teacher participants have developed and placed on the Web, and by the evaluations that support the conclusion that virtually all the teacher participants felt substantially strengthened in their mastery of content knowledge and their teaching skills. Our proposal would open this opportunity to many more urban teachers throughout the nation.

According to DeLauro, "Expanding this wonderful program across the nation will allow even more teachers the opportunity to gain additional sophisticated content knowledge and a chance to develop a curriculum that can be directly applied in their classrooms. When we strengthen teacher training, student achievement wins." These latest bills would authorize \$30 million over five years, making Federal funding available for the establishment of as many as forty new Institutes.

"The Yale-New Haven Teachers Institute has already proven to be a successful model for teacher professional development." —Joseph I. Lieberman

"When we strengthen teacher training, student achievement wins." —Rosa L. DeLauro

CONCLUSION

In 2007 the Yale-New Haven Teachers Institute continued its New Haven program with renewed teacher leadership and participated in the Yale National Initiative to strengthen teaching in public schools, which is based on the efficacy of the New Haven program and the success of its National Demonstration Project. Legislation was reintroduced in the Congress to build upon this record by making possible the establishment of as many as forty additional Teachers Institutes in states throughout the country.

Operating in New Haven for the 30th consecutive year, the Teachers Institute conducted a program of five seminars, two in the humanities and three in the sciences and mathematics. The Institute continued to support beginning teachers in New Haven, and its Centers for Professional and Curriculum Development in certain schools. It published a Manual on the Teachers Institute Approach to high-quality professional development and an issue of the periodical *On Common Ground*, which it circulated nationally. It conferred with the University Advisory Council of faculty members appointed by the Yale President about strategy for the National Initiative. The Institute Web site remained among the most popular sites on the Yale server. The number of "unique visitors" approximated one million and "hits" seven million. In these ways, the Institute assisted the school district's efforts to prepare and retain well-qualified teachers, and to develop resources to help implement school plans that address district goals, while disseminating the Teachers Institute approach nationally.

The Institute looks ahead to maintaining its local program as the best possible example of its approach to high-quality professional development for teachers, and the foundation of its work nationally.

APPENDIX

Committees and Councils of the Institute

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