

The Mathematics Enthusiast

Volume 11
Number 1 *Number 1*

Article 3

2-2014

The Teachers Institute Approach to Professional Development

Roger Howe

Follow this and additional works at: <https://scholarworks.umt.edu/tme>



Part of the [Mathematics Commons](#)

Let us know how access to this document benefits you.

Recommended Citation

Howe, Roger (2014) "The Teachers Institute Approach to Professional Development," *The Mathematics Enthusiast*: Vol. 11 : No. 1 , Article 3.

Available at: <https://scholarworks.umt.edu/tme/vol11/iss1/3>

This Article is brought to you for free and open access by ScholarWorks at University of Montana. It has been accepted for inclusion in The Mathematics Enthusiast by an authorized editor of ScholarWorks at University of Montana. For more information, please contact scholarworks@mso.umt.edu.

The Teachers Institute Approach to Professional Development

Roger Howe¹
Yale University

Abstract: *The Yale New Haven Teachers Institute (YNHTI) provides a distinctive, perhaps nearly unique, approach to professional development. It originated in the 1978 as an outreach activity of Yale University to the New Haven Public Schools. For 20 years, it operated almost exclusively in New Haven. In 1998, under the leadership of its founder, James Vivian, YNHTI conducted a National Demonstration Project, and since 2004 has promoted a National Initiative, to spread the Teachers Institute model to other cities, with a focus on school districts with low income demographics. Currently there is a League of Teachers Institutes with Institutes operating in Charlotte, New Castle County, Delaware, Philadelphia, and Pittsburgh. Other locales working towards founding a Teachers Institute include Chicago, Dekalb County GA, Richmond, and the San Francisco area. This article outlines the salient features of the YNHTI.*

Keywords: Math Teachers Institute; Mathematics teacher professional development; outreach activities; *Yale New Haven Teachers Institute (YNHTI)*

The core activity of a Teachers Institute takes place in seminars. Each seminar is led by a faculty member from a participating university or college, with up to a dozen Fellows, teachers from participating school districts. Local seminars will meet on a regular schedule, typically for two hours or more at one time, over a period of months. In New Haven, seminars meet in 12 two-hour sessions, running from March through early July. The National Initiative also runs seminars, for teachers from all participating districts. These National Seminars have preliminary meetings in early May, and their main work is done in a two-week Intensive Session in mid-July.

The distinguishing feature of a Teachers Institute is that, rather than provide evidence of mastery of the seminar topic by examination or other means internal to the seminar, the primary obligation of each seminar Fellow is to write a curriculum unit based on the seminar. This structure obviates questions as to what seminar material is mastered by a fellow, and also the question of whether the seminar affects classroom practice: it automatically does.

The Teachers Institute approach is based on a cooperative partnership between a college or university and a school district. (It is possible to have multiple partners

¹ howe@math.yale.edu

on either side of the partnership, but for simplicity we will ignore that possibility here.) Faculty members from the higher education partner contribute their subject matter expertise by offering seminars in relevant topics, and teachers contribute their classroom expertise to create sequences of lessons that incorporate the insights afforded by the seminar. Fellows in a given seminar will typically represent all grade levels, from the primary grades through high school. It follows that seminar themes must be educationally robust: they must have potential for enriching instruction for students of all ages. Seminars can be built around recent advances in a field, especially in science or technology. They may also be built around enduring issues: important perspectives that may escape attention in standard courses, or fundamental ideas that are relatively neglected in existing curricula. The seminars offered in the National Initiative in 2011 were:

- The Art of Reading People
- Love and Politics in the Sonnet
- The Big Easy: Literary New Orleans and Intangible Heritage
- Chemistry of Everyday Things
- Great Ideas of Primary Mathematics
- Organs and Artificial Organs

I have been the main leader of seminars in mathematics for the National Initiative for the past several years. The seminars I have offered in previous years are

- The Art and Craft of Word Problems
- Estimation
- The Mathematics of Wallpaper

A strong feature of a Teachers Institute is the key role played by teachers in all activities. Seminar topics are offered by faculty, but the decisions as to which seminars will run is in the hands of a committee of Teacher Representatives, who canvas their colleagues throughout the district as to which of the proposed topics have the most potential to raise the level of instruction. After seminars are selected, the same committee accepts and vets applications to participate in the selected seminars, and determines seminar membership. Each seminar also has one Fellow who serves as coordinator, ensuring good communication between the Seminar Leader and the Fellows, and especially, that the complex task of unit writing proceeds on schedule, with each Fellow having adequate guidance and support.

In this spirit, the seminars themselves are highly collegial affairs, with regular participation from all Fellows as well as the Seminar Leader. In particular, seminars include time for Fellows to share with each other their plans for their units, and to provide feedback and mutual support for their projects. Discussions initiated during seminar time may well lead to further exchanges between Fellows outside of seminar meetings.

Teachers Institutes are not on their face a low cost approach to professional development. Fellows are paid stipends for successful participation, and seminar Leaders are paid a reasonable salary. Also, Institute seminars do not reach large

numbers of teachers at a given time. Seminars are limited to 12 fellows, and typically fewer than 100 fellows will be participating in seminars in a given year. A natural question to ask, therefore, is, what evidence is there that Teachers Institutes are effective in improving instruction? The main evidence comes from participating teachers, who typically react enthusiastically, even ecstatically, to their experiences in Teachers Institutes. In many surveys over many years in many cities, fellows "consistently rated Institute programs higher than other professional development programs in developing the knowledge, skills, enthusiasm, high expectations of students, and capacities to motivate students that most studies indicate to be central to successful teaching." ([1]) A study ([3]) conducted by Professor Rogers Smith of the University of Pennsylvania, found that the Teachers Institute approach "significantly strengthened teachers in all five dimensions of teacher quality: it helps to produce teachers who really know their subjects; who have good basic writing, mathematics and oral presentation skills; who expect their students to achieve; who are enthusiastic about teaching; and who can motivate children to learn." In my own experience in leading seminars in New Haven and for the National Initiative, the positive, indeed often joyful, reactions of the fellows to their seminars has been a striking and inspiring feature of the work.

In addition to their impact on Fellows, Institute Seminars can have a significant add-on effect. Teachers who develop successful units in key areas may share their insights with colleagues. In several instances, my seminar Fellows from previous years have reported that the new ideas and practices that they developed in my seminar have spread to their whole school.

Also, the units from each seminar are published. At the beginning, they were published in print form, but now also, the National Seminars and many local seminars are available online. These can be viewed by teachers anywhere, and their ideas adopted or adapted as desired. I know that the units of some of my former Fellows have had this kind of impact. It is difficult to know exactly how many students are affected, and to what extent, by the work of Teachers Institutes, but a statistical model developed for the National Initiative suggests that the numbers may be substantial.

Writing a curriculum unit presents a substantial challenge to Fellows. The unit that a first time Fellow writes may be the largest piece of sustained writing that the Fellow has ever done. To guide the Fellow in this substantial endeavor, a careful structure has been elaborated over the years. First is a recipe for the overall form of the unit. A unit should begin with a rationale, stating the broad goals of the unit, and how these goals fit into the fellow's teaching duties, including a summary of the nature of the school where the fellow teaches and the population it serves, as well as district or state expectations regarding the subject of the unit.

Following the rationale is a narrative that discusses in considerable detail the content goals of the unit, and intellectual and practical considerations that must be taken into account to accomplish them. In mathematics, this will probably include a

significant amount of mathematical background that might not be familiar to another teacher who might want to use the unit. The narrative will also discuss sequencing and scaffolding, and what auxiliary ideas will need to be coordinated and brought to bear in order for students to absorb the key ideas treated in the unit. The narrative will also discuss pedagogical strategies the Fellow expects to use to ensure student learning.

The narrative is followed by three or more sample lesson plans illustrating the treatment of some key topics, and annotated bibliographies from the Fellow's research: the sources consulted to learn the relevant material and to produce the unit, a reading list for students, and sources of classroom materials.

Besides the guidance of overall form, a carefully sequenced schedule of steps toward the final unit has evolved, with substantial support available at each step.

The writing process begins with the prospectus, in which a Fellow attempts to articulate his or her main goals, and outlines some strategies to attain them. The prospectus forms the basis for one-on-one discussions with the Seminar Leader, to review the appropriateness, coherence, focus and scope of the goals and means described in the prospectus. These discussions result in a refined, focused, and probably feasible plan. If s/he has not already done so, the Fellow can begin writing at that point. In addition, the Fellow will probably present the draft plan for the unit in the seminar, and obtain feedback and suggestions from the other Fellows. This input is often incorporated into the draft plan.

The next main stage is the first draft, which is due midway in the course of the seminar. The first draft consists most importantly of the narrative, which is typically the most challenging part to write. The detailed lesson plans and the bibliography, and even the rationale, may wait until later. The first draft forms the basis for a second set of interviews between the Fellow and the Seminar leader. The Leader will offer fairly extensive remarks, both on the content and organization of the draft, especially of the narrative, and on specific issues of style.

The Fellow takes the Seminar Leader's comments and incorporates them into a second draft. The second draft is more ambitious than the first in that it should be an essentially complete version of the unit, with all the constituent parts in more or less complete form. The second draft is then reviewed by the Leader, who again will make suggestions, this time probably concentrating less on overall organization, which should have been largely addressed in the discussion of the first draft, and more on local issues of style and, in the case of mathematics units, specifics of logical development. The comments on the second draft will then be used by the Fellow to produce a third draft. Normally, the third draft is essentially the final version, and will need only minor changes, or perhaps none at all, to be published as part of the collection of units from the seminar. Until recently, publication meant the production of physical volumes collecting all the units in the seminar, with an

introduction and summary written by the Seminar Leader. Now, publication of units from the National Seminars is online. Units from recent National and local seminars can be found at

<http://teachers.yale.edu/units/index.php?&skin=h>

Articles of Understanding

The National Initiative has formulated "Articles of Understanding" that characterize the Teachers Institute approach to professional development. We give brief summaries of the articles here. These articles are spelled out in [1], which has been the main source for this note.

Article 1: Partnership. A Teachers Institute links an institution (or institutions) of higher education (the *higher education partner(s)*) to a school district (or districts) in which a significant portion of students come from low-income communities. The Institute is an independent unit within (one of) the higher education partner(s), which assumes full administrative and financial responsibility for the Institute.

Article 2: Participants. Teachers who participate in an Institute become Fellows in its seminars. A group of Teacher Representatives are selected from the Fellows. Faculty members at the partner university serve as Seminar Leaders and/or on a University Advisory Council to the Institute.

Article 3: Direction. The Institute should have a full-time Director, who serves as convener, administrator, liaison between the partner school district(s) and higher education partners, and as fund raiser. The Director is an employee of the higher education partner that houses the Institute.

Article 4: Leadership of Teachers. Participating teachers, through the Teacher Representatives, play a major role in planning organizing, conducting and evaluating the programs of the Institute. They seek input as to desirable seminar topics, select seminars to be offered, recruit and select Fellows for the seminars, and serve as Seminar Coordinators.

Article 5: Faculty Role. Faculty in the partner university offer seminars, advise in the selection of seminars, and participate in reviewing the results of each year's activities.

Article 6: Seminars. Seminars comprise approximately 12 Fellows and a Leader. Seminars are intensive collaborative, collegial investigations of broadly defined topics with robust educational potential. Seminars should hold at least 12 two-hour meetings over a period of approximately three months. During the course of the seminar, each Fellow should produce at least two drafts of their proposed curriculum unit, based on the theme of the seminar.

Article 7: Curriculum Unit. The curriculum unit is the means by which a Fellow articulates what s/he has learned in the seminar, prepares to transfer that learning to the classroom, and communicates that learning to other teachers. Each unit consists of between 15 and 30 single-spaced pages, and includes the rationale and objectives of the unit, an exposition of the material to be presented in the classroom and of the pedagogical strategies to be used, several sample lesson plans, and an annotated bibliography.

Article 8: Collaboration. The melding of subject matter with pedagogical strategies and procedures is fundamental to the Institute approach, and is essential to the collegiality on which an Institute is founded. The Seminar Leaders are primarily responsible for presenting the disciplinary content of the seminar, along with any pedagogical principles that inhere in that content, while the Fellows, individually and collectively, are responsible for bringing that content to bear in their classrooms in ways that will motivate active learning by their students.

Article 9: Collegiality. Seminar Fellows and Leaders are considered professional colleagues cooperating collegially to produce good educational outcomes, based on the curriculum units produced by the Fellows.

Article 10: Eligibility. Any teacher in a partner district whose teaching assignment is related to a seminar being offered, and who can incorporate the theme of the seminar in a curriculum unit to be used in the following year, is encouraged to present a proposal to be a Fellow in that seminar.

Article 11: Remuneration. In recognition of the intensive, demanding and professionally significant nature of the work of Seminar Leaders, they will be remunerated for their participation in seminars. The participation of Fellows will also be provided with a stipend and/or honorarium on completion of their unit and all Institute requirements.

Article 12: Long-Term Commitment. The founding of a Teachers Institute presupposes a long-term partnership between the higher education partner(s) and the partner school district(s).

Article 13: Funding. Both the higher education partner(s) and school district(s) are committed to provide sufficient ongoing financial support to the Teachers Institute.

Article 14: The League. The Teachers Institutes of the National Initiative will have an explicit and visible relationship. Their subscription to these Articles of Understanding should be documented in annual reports.

Article 15: Evaluation. Teachers Institutes undertake at their own cost annual reviews of and reports on their progress, in cooperation with the Yale National Initiative. They will submit annual financial and narrative reports, both to the National Initiative and to relevant funders.

References

- [1] The Teachers Institute Approach, Yale National Initiative, 2007.
- [2] Rogers M. Smith, To Strengthen Teaching: An Evaluation of Teachers Institute Experiences, 2009.
- [3] Rogers M. Smith, To Motivate My Students, An Evaluation of the National Demonstration Project of the Yale-New Haven Teachers Institute, 2004.

