

Data Brief

**Chicago Teachers Project:
The Math Strand of the New Teacher Network
at the Center for Urban School Improvement**

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Abstract: This data brief reports a subset of the findings from the external evaluation of the Chicago Teachers Project (CTP). The CTP is funded by an Illinois Board of Higher Education No Child Left Behind Improving Teacher Quality grant for the fiscal year 2005 (IBHE NCLB grant). This strand of the CTP is focused on the ongoing development of a math strand in the New Teacher's Network (NTN) at the Center for Urban School Improvement (USI) for second year participants (Y2s). The evaluation and findings focus on five topics: a. workshop format and quality; b. the format and quality of training materials; c. the role of NTN Coaches in classrooms; d. the carryover of learning into classrooms; and e. the coordination of NTN and Everyday Math activities.

Findings suggest that the format and approach of NTN Y2 workshops were of high quality and that this format and quality increased substantially from 2004-05 and 2005-06 due to the increase in the size of the staff, the division of sessions into primary and intermediate/upper grade sessions and the expertise of newly hired staff members in math and science. Training materials came from a wide variety of sources. Data suggest that while these resources were used to create high quality professional development approaches, it is unknown if teachers left sessions with an understanding of how to identify their own resources or do this work in their own classrooms. The role of NTN Coaches has expanded dramatically since 2004-05 and the expansion of NTN Coaching staff and the increased structure and frequency of Coach involvement improved quality of these sessions. Participants reported that NTN was very helpful in their classroom practice and that the supports they received complemented other sources of support. Finally, data revealed the continued need for attention on coordinating the work of the grant partners (New Teachers Network, Everyday Math, the Office of Math and Science and the University of Illinois-Chicago).

Table of Contents

INTRODUCTION.....	3
EVALUATION METHOD: 2005-06	3
Table One: NTN Evaluation Framework.....	4
NTN EVALUATION FINDINGS: 2005-06.....	4
A. WORKSHOP FORMAT & QUALITY	4
<i>Workshop Format.....</i>	<i>5</i>
Table Two: Percent of Total Session Spent in Different Workshop Formats in a Sample of NTN Workshops, September 2005 – January 2006.....	5
Table Three: Comparison of Session Formats.....	6
at NTN Workshops(2004-05 and 2005-06)	6
<i>Workshop Quality.....</i>	<i>6</i>
Reflection on practice	6
Time for applying new ideas	6
Active participation through attendance, discussion, writing activities	6
Discourse around challenging intellectual ideas	6
Participants are engaged as sources of knowledge and experience	7
Participants receive constructive feedback on their work	7
B. FORMAT AND QUALITY OF TRAINING MATERIALS	7
<i>Working Math Problems: Learning Math, Thinking about Extension.....</i>	<i>7</i>
<i>Playing Math Games.....</i>	<i>8</i>
<i>Professional Reading on Teaching Mathematics</i>	<i>8</i>
<i>Discussing and Solving Challenges in Math Instruction.....</i>	<i>9</i>
C. ROLE OF NTN COACHES IN CLASSROOMS	9
<i>Framing the Lesson.....</i>	<i>9</i>
<i>Modeling of Constructivist Teaching of Mathematics.....</i>	<i>10</i>
<i>Modeling Public Practice.....</i>	<i>11</i>
D. CARRY-OVER OF LEARNING INTO CLASSROOMS.....	12
<i>Workshop Learning</i>	<i>12</i>
<i>Learning from Mentoring.....</i>	<i>13</i>
<i>Learning to be Teachers of Mathematics</i>	<i>14</i>
E. COORDINATION OF NTN AND EM ACTIVITIES.....	15
CONCLUSIONS AND RECOMMENDATIONS.....	16
A. WORKSHOP FORMAT AND QUALITY CONSIDERED.....	16
<i>Recommendations.....</i>	<i>17</i>
B. FORMAT AND QUALITY OF TRAINING MATERIALS	17
<i>Recommendation:</i>	<i>17</i>
C. ROLE OF NTN COACHES IN CLASSROOMS	17
<i>Recommendations:</i>	<i>18</i>
D. CARRYOVER OF LEARNING INTO CLASSROOMS.....	18
<i>Recommendations:</i>	<i>18</i>
E. COORDINATION OF NTN AND EM ACTIVITIES.....	18
<i>Recommendations:</i>	<i>18</i>
APPENDIX I: REFERENCES.....	20
APPENDIX II: DATA COLLECTION TOOLS	21

Introduction

This data brief reports a subset of the findings from the external evaluation of the Chicago Teachers Project (CTP). The CTP is funded by an Illinois Board of Higher Education No Child Left Behind Improving Teacher Quality grant for the fiscal year 2005 (IBHE NCLB grant). Dr. Andrew Isaacs of the University of Chicago School Mathematics Projects is the Principal Investigator for this project, which works to support Chicago Public School grades K-5 teachers using the Everyday Math (EM) curriculum. External evaluation for CTP is being undertaken by evaluators from the University of Illinois at Chicago's (UIC) PRAIRIE Group at the UIC College of Education.

The design of the external evaluation of CTP includes the collection and analysis of data about CTP efforts with: a) EM teacher professional development; b) EM leadership training workshops; and c) the ongoing development of a math strand in the New Teacher's Network (NTN) at the Center for Urban School Improvement (USI). This data brief covers activities dealing with point (c) above.

Between August 2005 and June 2006 USI staff planned monthly New Teacher Network workshops with math content to approximately 40-50 participating teachers in their second year with NTN (Y2s). The five NTN Coaches also engaged in regular mentoring visits to classrooms of a set of teachers during the year.

This data brief is based on observations of a sample of NTN workshop sessions, analysis of NTN agendas, shadowing of NTN Coaches, interviews with NTN Coaches and two sets of written reflections of teachers participating in the Y2 teacher cohort, one collected by UIC PRAIRIE staff in September of 2005 and the second by NTN staff in February of 2006. The observations and data collection occurred between September 2005 and February 2006.¹

Evaluation Method: 2005-06

The evaluation of the math strand of the New Teacher Network for 2005-06 is based on observations of training sessions, analysis of agendas, consideration of training documents, collection of written reflections from participants, observations of NTN Coach mentoring, and interviews with Coaches about their work. The evaluation is organized around five guiding questions:

- a. What is the format and quality of the training? Do the sessions model quality professional development practices? How is time used in workshops?
- b. What is the format and quality of training materials?
- c. What is the role of NTN Coaches in classrooms?
- d. To what extent (and how) do practices learned in training workshops carry over into school implementation?
- e. To what extent (and how) has NTN staff expanded efforts to recruit EM teacher participation? To what extent has the coordination of NTN and EM activities been successful?

¹ The evaluation of the math strand of NTN began in 2004-05. The analysis of the strand in 2004-05 was presented in a data brief to the partners in the CTP grant in February of 2005 and results were summarized with other CTP findings in a summative report in April of 2005 (For additional details on the first year evaluation results, see Stoelinga, February-2005; Stoelinga, April-2005).

Table One: NTN Evaluation Framework

Focus of Evaluation	Design of Evaluation	Amount of Data Collected
A. Format and quality of NTN Y2 Workshops	Observations were made of NTN Y2 workshop sessions using a protocol that allowed for the coding of time allocation. Analysis and coding of agendas supplemented these observations. Interviews with NTN Coaches gathered further information about the workshop design and Coach assessment of strengths and weaknesses.	A total of 600 minutes (~10 hours) from 4 NTN workshop sessions were observed between September 2005 and February 2006. Agendas were also analyzed. Formal interviews (45-60 minutes) were conducted with 3 of the 5 NTN Coaches.
B. Format and quality of training materials	Written documents about all NTN math activities were collected: Meeting agenda, handouts, "lesson plans" from meeting leaders.	7 of 10 sets of lesson plans were collected (for primary and intermediate/upper grade meetings, Sept-January). Full sets of agendas, handouts and activities were collected for 4 of 10 meetings. Formal interviews (45-60 minutes) were conducted with 3 of the 5 NTN Coaches.
C. Role of NTN Coaches in Classrooms	Coaches were shadowed as the engaged in demonstration lessons in classrooms. NTN Coaches were interviewed. Participant views were collected through written reflections at two time points and a small sample of teacher interviews.	3 mentoring sessions were observed (~40-60 minutes each). 2 teacher debriefing sessions were observed and follow-up interviews were conducted with each teacher. Formal interviews (45-60 minutes) were conducted with 3 of the 5 NTN Coaches.
D. Carry over of learning into classrooms	Coaches were shadowed as the engaged in demonstration lessons in classrooms. NTN Coaches were interviewed. Participant views were collected through written reflections at two time points and a small sample of teacher interviews.	3 mentoring sessions were observed (~40-60 minutes each). 2 teacher debriefing sessions were observed and follow-up interviews were conducted with each teacher. Formal interviews (45-60 minutes) were conducted with 3 of the 5 NTN Coaches.
E. Coordination of NTN and EM activities	Interviews were conducted with NTN Coaches	Formal interviews (45-60 minutes) were conducted with 3 of the 5 NTN Coaches.

NTN Evaluation Findings: 2005-06

The findings sections of this data brief begin by summarizing collected data on: a. NTN workshop format and quality; b. The format and quality of training materials; c. The role of NTN Coaches in classrooms; d. The carryover of learning into classrooms; and e. The coordination of NTN and Everyday Math activities. These sections present evidence descriptively, providing illustrations from observation and reflection data where relevant. Following these descriptive sections are conclusion and recommendation sections that provide a more analytical treatment of the data.

A. Workshop Format & Quality

This section describes and evaluates NTN Y2 workshop offerings. It begins with a subsection on format and then turns to workshop quality.

Workshop Format

There were approximately 12.5 hours of workshop training offered to Y2 teachers in the time of this study, between September of 2005 and January of 2006. These sessions were divided into primary teacher sessions and intermediate/upper grade teacher sessions for a total of 25 possible hours of workshops for observation. The evaluation team observed ten hours of workshops. These observations occurred in four out of the ten possible after-school workshops (late September, primary and intermediate/upper; late October, primary; late November, intermediate/upper).

The school-year trainings for Y2 teachers occurred monthly, from 4:00 to 6:30 p.m. The NTN workshops took place at the Center for Urban School Improvement, located on the southeast end of the University of Chicago campus in Hyde Park, on the south side of the city.

To begin the consideration of the NTN workshops for Y2 teachers offered from September 2005 to January of 2006, we first take a look at the format -- how time was allocated -- in observed workshops. Observation notes were coded to quantify time allocation during the sessions. The following categories were used for coding:

- Individual work: Time in which participants worked alone on an activity
- Small group: Time in which participants worked on an activity in small groups
- Full group discussion: Time spent in full group discussion generally facilitated by instructor
- Presentation by NTN staff: Time spent listening to instructor presentation
- Break/Late start: Time in which scheduled meeting time was not used due to breaks or late starts.

Table Two: Percent of Total Session Spent in Different Workshop Formats in a Sample of NTN Workshops, September 2005 – January 2006

	September 20 th , 2005 (Pri) (150 min)	September 21 st , 2005 (I/U) (148 min)	October 18 th , 2005 (Pri) (153 min)	November 16 th , 2005 (I/U) (155 min)	Average across four sessions 2005-06 (606 min)
<i>Total Minutes</i>					
Individual	18.7%	16.9%	0.0%	23.9%	14.9%
Small Group	36.7%	50.7%	43.8%	47.1%	44.5%
Full group	24.0%	14.8%	38.6%	16.1%	23.4%
Presentation	7.3%	4.1%	0.0%	0.0%	2.9%
Break/Late start	13.3%	13.5%	17.6%	12.9%	14.3%

Analysis reveals that across the four observed sessions, on average, the largest percentage of time was spent in small group work at 44.5% of workshop time. Full group discussions were the next most utilized workshop format with 23.4% of time on average spent in this manner. Individual work was approximately 14.9% of observed workshop time. Formal presentations by NTN staff took a very small percentage of time, generally only being used to move participants from one activity to another, amounting to 2.9% of observed time on average. On average, 14.3% of workshop time was taken up in late starts.

It is interesting to compare the average percentage of time spent in each format in 2005-06 to the data analysis from the 2004-05 observations. What is most striking in 2005-06 is the shift to the use of small group activities as the primary format for NTN Y2 workshops. Small group work represented about 30% of observed workshop time in 2004-05; it was nearly 45% of workshop time in 2005-06. The majority of this new small group work time replaced a greater reliance upon formal presentations in last year's workshops. The percentage of time spent in formal presentations dropped from 16.7% (2004-05) to 2.9% (2005-06).

**Table Three: Comparison of Session Formats
at NTN Workshops(2004-05 and 2005-06)**

	Average across four sessions 2004-05 (692 min)	Average across four sessions 2005-06 (606 min)
Individual	11.9%	14.9%
Small Group	30.0%	44.5%
Full group	25.9%	23.4%
Presentation	16.7%	2.9%
Break/Late start	15.5%	14.3%

Workshop Quality

Research suggests that high quality professional development encourages reflection on practice, provides the opportunity to apply new ideas, actively involves participants, promotes discussion of challenging intellectual ideas, engages participants as sources of expertise, and presents participants with feedback on their practice. This understanding of high quality professional development was built into the data collection for this evaluation. The observation protocol aimed to tap the extent to which the NTN workshops exhibited evidence of high quality professional development.

Reflection on practice

Virtually all activities observed in the NTN Y2 meetings encouraged teachers to reflect on their practice. The grade level groups allowed teachers to work as “students” to solve math problems and then to think about ways in which activities would have to be modified for use in their own classrooms. In addition, this grade level time was spent engaging in learning math content. This was accomplished through the consideration of challenging math problems. Each full group and individual formatted session encouraged reflection on practice through activities such as playing math games, engaging in individual professional reading about math teaching and learning, and discussing math ISAT problems.

Time for applying new ideas

The hands-on, group and individual activities were designed to allow participants to consider new ideas by actually applying them. Student activities were introduced in a hands-on manner that allowed participants to “play” students. For example, participants played common board games that build math skills (9/20/05 & 9/21/05), applied the “math workshop” format (10/18/05) and worked word problems that they might give to their students (11/16/05). NTN staff encouraged extension activities that went beyond each of these activities. Teachers were asked to modify games and word problems to fit the abilities of their students and to anticipate challenges to the implementation of activities (all observed sessions). Y2s went beyond working word problems they were given to creating new word problems using a template provided by the NTN Coaches (11/16/05).

Active participation through attendance, discussion, writing activities

The style of the four observed sessions was geared toward active involvement of participants. The model of a presenter “talking at” participants was very minimally used, averaging at only 2.9% of observed NTN workshop time. Full-group activities, instead of being structured as a one-way presentation of information, were formulated as a dialogue between NTN staff and participants. NTN sessions were very active. Participants were moving from one activity to the next, and the format of the sessions was hands-on. Small groups were the primary mode of workshop operations and Y2s had an equal voice with the facilitator in the discussions.

Discourse around challenging intellectual ideas

Participants were pushed to embrace mathematics, with some resistance! Many of the participants reported being more comfortable with the literacy focus used in the first year of NTN (when they were Y1s) and were less excited about focusing on math. In the words of one NTN Coach:

Our Y2 meetings are very math-focused. The whole session is all math. I am just really proud of that fact...Because we got a lot of push-back at the beginning of the year where people were like, 'what is this math stuff?' But...the teachers are really involved and interested and they are starting to open their minds to 'oh, I have to teach math, too.'

In both workshops and individual mentoring, NTN staff pushed Y2s to see the need to focus on their math practice. An excellent example is an observed session in which participants engaged in an activity designed to translate the literacy workshop format into their math lessons (10/18/05). Participants were challenged to embrace math by working math problems (10/18/05 & 11/16/05), playing math games (9/20/05 & 9/21/05) and talking with grade area peers about their successes and struggles in math instruction (all observed sessions).

Participants are engaged as sources of knowledge and experience

Participants were encouraged to offer their suggestions and opinions to other teachers. For example, when one participant asked a Coach how she might modify an activity for her grade level, the Coach turned the question over to the large group to respond (10/18/05). Teachers turned to one another for solutions to management and teaching problems in grade level groups (9/20/05). Y2s were pushed to extend activities to better fit the needs of their classroom and their teaching style (11/16/05).

Participants receive constructive feedback on their work

Participants received feedback on their work and practice in multiple ways. They were encouraged to share their challenges and experiences with colleagues who could give them potential solutions and feedback. For example, participants were encouraged to try out a math word problem activity with their children and then to bring back their experiences for debriefing (11-16-05). A large portion of participants (14 of 17 primary respondents) reported receiving in-classroom mentoring from NTN staff in the form of observation, demonstration or co-teaching lessons (See section on Coaching below for more details).²

B. Format and Quality of Training Materials

Based on the analysis of agendas and observation of the four NTN sessions described above, the content of NTN Y2 training spanned across four main subject areas:

- Working math problems: learning math, thinking about extension
- Playing math games
- Professional reading on teaching mathematics
- Discussing and solving challenges in math instruction

In the section that follows, a brief description of the content areas are provided and meeting excerpts that illustrate them are shared.

Working Math Problems: Learning Math, Thinking about Extension

Participants spent between 20% and 65% of the observed sessions working math problems as their students would. In the process, session leaders aimed to help participants develop a better

² The February written reflections were administered by the NTN staff and were only collected with primary Y2s. Thus, intermediate and upper grade Y2 viewpoints are not reflected in the February data.

understanding of the math behind the activities, explore diverse ways to teach concepts, and create extension activities from the assigned problems to deepen their engagement with the material. For example, in the November session, 7th and 8th grade math teachers worked individually through fraction word problems taken from an activity in the Britannica Mathematics System materials. The teachers then talked together about the different ways their students would go about solving the problems. The NTN Coach facilitated a discussion about the range of approaches the teachers could use to teach the concept to their students using cooperative learning groups. Then, the teachers were asked to extend this activity through the creation of their own word problems using a template developed by the NTN Coaches (11/16/05).

NTN Coaches talked about how this focus on improving teacher skills in math and the widening of instructional strategies for teachers to use to introduce math concepts had become a more explicit goal of NTN workshops:

Those smaller group sessions...give us the chance to actually do some math. So we come together around a problem that they would do with their kids but a lot of times the teachers don't feel comfortable with the math, especially the primary people. And so getting a chance to, as an adult, come back to 7th grade math in a way that is more open ended. So that is what I am trying to do in those sessions and I think that it is working well.

Playing Math Games

In three of the four observed sessions, math games were used with Y2s, both to encourage teachers to refresh and deepen their understanding of math concepts and to introduce “math in the real world.” NTN Coaches introduced math games from a variety of sources. Math games were put into centers for participants to rotate through, to illustrate the development of basic skills using games and the idea of using math centers (9/21/05). Coaches introduced repetition and pattern songs as tools for teaching students counting and sets (9/20/05; 10/18/05). Games are included as part of the workshop approach very intentionally, according to NTN Coaches:

Another key piece to the workshops, a piece we have included very intentionally, are math games. Let's help our teachers to see that math can be fun for the kids, that you can get great skills development from playing games.

The sources of these games were identified by Coaches to be the Internet, Everyday Math and other math series and modified literacy activities. Between 12 and 25% of session time was spent playing and debriefing math games.

Professional Reading on Teaching Mathematics

In each of the four observed sessions, teachers were provided with professional reading on the teaching of mathematics (in addition to a wide range of hand outs with teaching activities, ISAT information, the state standards, etc.). In three of the four sessions observed, time was allocated in the workshop for participants to read, reflect upon and discuss the professional reading that was distributed. For example, in the November session, participants read an article from a journal called “Mathematics Teaching in the Middle School.” The article was titled: “Fostering Student Discourse: Don't Ask Me! I'm Just the Teacher.” Y2 teachers were given time to read the article and were provided a post-reading reflection form with three questions:

- Think about your last mathematics lesson. Did it involve student sharing? Briefly describe what your students shared and how they shared it.
- Using the article as a reference, how can you support your students in having authentic “math talk” or conversations in your classroom?

- Finally, think about a plan for implementing these ideas in your classroom. Write your three-step action plan below!

Participants individually read the article and reflected upon it. This led into a discussion with the larger group (11-16-05). This type of reading and dialogue about professional practice was common in NTN sessions. In addition, providing participants with additional readings to take with them to consider on their own time was common.

Discussing and Solving Challenges in Math Instruction

Another goal of the observed NTN sessions was to allow teachers the change to discuss and address challenges in their math instruction. This was woven into virtually every activity. For example, word problems were introduced and teachers were asked to anticipate challenges they would have using them in their class (11/16/05). In another session, the focus was on math games that some participants had already used with their class. These experienced participants were asked to talk about challenges they encountered in using the games and how they addressed them (9/21/05).

This type of problem solving around challenges in math instruction occurred most explicitly in grade level or grade area groups. In a primary session, for example, participants rotated through math centers with games (9/20/05). In grade level groups, they debriefed these activities, asking one another questions about how to tweak their use of math centers and games. In a first grade group, this became a question and answer session among teachers, with the teachers giving one another suggestions and the NTN Coach being present largely as a facilitator. “How do I introduce games in a way that keeps down the disruption?” one teacher asked her colleagues. Another teacher suggested starting the activity by having two students “model” for the class the quiet, appropriate way to play each game. “How can I use the dice game in my classroom and keep kids under control?” another teacher asked. Her colleague explained that she used take-out containers for kids to roll their dice to keep down noise and keep dice from being thrown around the room. This kind of colleague-to-colleague dialogue and problem solving was evident in each of the four observed sessions and seemed to be part of the norm of the NTN workshops.

C. Role of NTN Coaches in Classrooms

NTN Coaches reported being responsible for mentoring between twenty-five and forty teachers. This involved moving beyond Y2 workshop sessions to observations, co-teaching and demonstrations in classrooms. They estimated this part of their work as taking between 50% and 80% of their time. The number of visits to each of their mentees classrooms was to be defined by whether the participating teacher was in their first or second year and which Area their school was in. Y1s and Area 15 Y2s are generally allocated three visits across the school year. Y2s outside of Area 15 are to be given 1.5 visits across the year.

Three of the five NTN Coaches were shadowed as they did demonstration lessons in classrooms and were interviewed about the mentoring process after the observed lesson. Two debriefing sessions with teachers were observed. Three components of coaching were consistent across the Coaches observed and interviewed: the framing of their mentor visits; the modeling of constructivist teaching in mathematics; and the modeling of public practice.

Framing the Lesson

Demonstration lessons were framed for mentored teachers by NTN Coaches through pre-demonstration conversations (via e-mail or in person), and the provision of the overview of lessons and observation guides. Pre-demonstration conversations established the content and approach of the mentoring session. This arose from either a teacher-identified or Coach-identified need.

It is a combination of teacher-selected and Coach-selected topics, really aiming to meet some teacher need. In some cases, a teacher will come to me and say ‘I am struggling with classroom management with math centers,’ or ‘I am having trouble teaching fractions in this lesson,’ and I will design the content of the demo around that. Other times, I am in the classroom just as a helper one day and observe an area that I think the teacher needs assistance.

Each of the three observed Coaches provided the teacher they were visiting with an overview of the lesson they would be teaching. This included photocopied pages of the lesson and the handouts they would be using with students. Two of the three Coaches also provided observation guides to the teachers they were mentoring. Each Coach had his or her own form, but with the same purpose: to provide teachers with a framework for making a structured observation of the Coaches’ practice. Teachers could take notes on the observation sheet, which could then be used in a debriefing conversation after the lesson. One Coach’s observation guide, for example, contained the following questions:

- What management strategies did I use?
- What routines did I emphasize?
- How did I deal with mathematics?
- What was the level of student engagement? Did it change?
- What was the purpose of my lesson?
- What was my “hook”?

Modeling of Constructivist Teaching of Mathematics

NTN Coaches were committed to constructivist teaching methods in mathematics, in which students learn by making connections to what they already know, move beyond skills practice to spatial, experiential learning and teachers are ‘facilitators of learning,’ using teaching methods that allow for student interaction and expression of preference and understanding (Caine and Caine, 1990). This was an underlying goal of mentoring expressed by all of the interviewed NTN Coaches.

For example, one Coach focused on the goal of student interaction in the classroom and building student understanding of mathematical reasoning

I am trying to push [the teachers I am mentoring] to be a little more open to something besides direct instruction. So I am trying to get kids to work in groups, to talk about strategy, get kids familiar with vocabulary...Not only the vocabulary [from this particular math text], but defining for themselves what they are doing. They are very unaware of why they have to do things in math, they do what they are told and don’t think it through. I am trying to build critical thinking.

Another NTN Coach similarly emphasized the importance of connecting math instruction to the “real-world” and moving a teacher toward facilitating learning:

The first coaching goal was for him to see how he could use a real-world application to launch a concept. And then, number two, increasing the amount of student-student talk in the classroom so that he can see that he can be more of a facilitator of conversation, rather than having to be in control.

NTN Coaches mentored teachers in this constructivist approach largely by demonstrating it in their own practice. This was accomplished both through the format of the instruction as well as the approach to content in their demonstration lessons.

In terms of format, one observed NTN Coach introduced an activity on fractions in which students worked to solve problems first as a whole class, then individually, then in small groups. Another NTN Coach designed a real-world activity on integers, using the model of debits and credits in a small business and allowed students to work in pairs to design their business and calculate their overall debt or credit. The observed NTN Coaches moved fluidly between individual, whole group, and small group activities, allowing students a variety of formats for the inquiry-based activities. NTN Coaches demonstrated what it meant for a teacher to ‘facilitate learning,’ asking questions to promote student thinking about the math in which they were engaged at a deeper level.

Importantly, NTN Coaches also modeled the classroom management strategies that went along with this approach, demonstrating to mentee teachers that small group work or class discussions could be orderly, structured learning opportunities for students. One NTN Coaches talked about using teacher location in the room to demonstrate to teachers that “proximity to students” was an important way to help a teacher “manage certain student behavior.” Similarly, another Coach modeled the process of establishing rules for small groups. This led a teacher to reflect in debriefing that group work had not gone well in her room “because I haven’t done a good job of laying the ground rules.”

The approach to the mathematical content modeled the constructivist philosophy as well. Coaches moved beyond skills practice to making deeper connections of the “how” and “why” with students. For example, one Coach asked individual students to come to the front of the class to write answers on the board. In each case he asked the student to explain how they got their answer and asked other students in the class to ask the student questions if they did not understand or were critical of the answer.

Modeling Public Practice

The first words that appear on the top of one NTN Coach’s lesson description given to teachers represent well the NTN philosophy on demonstration lessons:

Reminder: These demonstration lessons are not meant to model “perfect practice”- they are instead, “public practice”- the opportunity for teachers, coaches and leaders to come together to ask questions about teaching and learning.

NTN Coaches allow teachers to critique their demonstration lesson, asking them to comment on what worked well for their kids and what didn’t.

I...ask the teacher to find fault with my lesson so I sort of say, this is your opportunity to pick apart a lesson. Tell me, what worked well for your kids and what didn’t work well for your kids so that if you try a lesson like this you know...I am not going to critique you, but I want you to critique me because I can take it. What are the things that worked, what are the things that didn’t work and hopefully what I would see coming out of her is, it ran long, you didn’t have my kids write down their homework, where could you have cut back some things. And then I would be able to say, I would have cut the read aloud much shorter and I would have done this and this. Or at the end, maybe I would have had partners work together to do the problems so that they could have worked more back and forth together.

Having this dialogue about the demonstration lesson allows for teachers to think critically about teaching approaches in general. At the same time, it allows the Coach to model for the teacher the sharing of practice, encouraging the mentored teacher to consider their own strengths and weakness in the same critical, yet non-judgmental manner.

It is reflective practice. I am very reflective and I want the teachers to be, too. If they feel comfortable critiquing my lesson, and some people have been vicious [laughing]...but if they feel more comfortable opening up then I can say to them, well, you might want to think about these things as far as management...

D. Carry-over of Learning into Classrooms

The carry-over of learning from workshops and mentoring into classroom practice was measured through two sets of written reflections that were administered to Y2s, the first in September 2005 and the second in February of 2006. The September administration asked Y2s to express their needs and their hopes for what they might gain from their participation in NTN. The sections that follow, about workshop learning, learning from mentoring and overall learning from NTN, draw upon the written reflections to get a sense of teachers' hopes in September and their assessment of their growth from participating in NTN in February.³

Workshop Learning

When asked what they hoped to gain from their participation in NTN in September, Primary Y2s focused on nine main topic areas:

- **Support from other teachers (9)** *"The support is invaluable! Being around other people who are passionate about teaching really helps bring up my attitude after some tough days with the kids."*
- **Learning best practices (6)** *"NTN pushes me to do more in the classroom, away from traditional and toward best practices. My literacy practice has grown dramatically and I want my math to grow, too."*
- **New ideas to try in classroom (5)** *"I hope to gain some useful knowledge and information to use directly in my classroom."*
- **Improving math instruction (4)** *"I would like to be more efficient and focused in my math teaching."*
- **Sharing ideas with other teachers (4)** *"I love the ideas shared by NTN members and Facilitators, they are very useful and easy to implement."*
- **Solving management challenges (4)** *"I need better solutions to management in all subjects."*
- **Integration of subjects (3)** *"Ways to integrate math into other subject areas and parts of my day. We focus so much on literacy and I feel we don't get enough of the other subjects in."*
- **Creating community in my classroom (2)** *"To become better at creating a community so that all of my students come away having learned as a part of a caring community."*
- **Literacy (1)** *"I know that the Y2 cohorts focus mostly on math, but I need more help with literacy—especially since my 3rd graders are so low."*

Getting support and ideas from fellow teachers and from NTN staff and walking away with instructional ideas in math was important to primary Y2s. Classroom management, especially in relation to the use of cooperative learning and centers and in integrating math and other subjects into literacy was also a focus. Primary Y2s seem concerned that they do not have enough time to teach subjects discretely and want help fitting more subjects into their literacy block.

When asked what they hoped to gain from participation in NTN, Intermediate and Upper Grade teachers focused on seven main topic areas:

- **Support from other teachers/NTN staff (7)** *"I am hoping that the extra support will keep me from giving up and quitting."*

³ The September reflections were administered to 21 Primary Y2s and 16 Intermediate and Upper Grade Y2s by UIC staff. The February administration included 17 Primary Y2s and 0 Intermediate and Upper Grade Y2s and was collected by NTN staff.

- **Learning new techniques/best practices (7)** *“I am here because I want to use best practices and be the best teacher that I can.”*
- **Classroom management skills (5)** *“I am really scared about the idea of centers and having kids working on 4 different activities at the same time and moving around and all of that jazz. I need help with management.”*
- **Orientation to/Retention in CPS (4)** *“I need information and coping skills for teaching in CPS.”*
- **Sharing ideas with other teachers (3)** *“Sharing ideas and networking with colleagues.”*
- **Improving math instruction (2)** *“I really need help in making math instruction clear, fun and differentiated.”*
- **New ideas to try in classroom (2)** *“I am looking for project ideas and activities I can use right away.”*

Intermediate/Upper grade teachers were particularly focused on the support, management and orientation to CPS aspects of NTN while the primary teachers were much more focused on support and instructional practices. The Y2 intermediate/upper grade teacher statements about their need for support, management and orientation to CPS had a desperate tone, focused on “coping”, “help me stay in CPS” and “understanding CPS culture and policy.”

Reflections administered in February revealed that teachers felt that four main components of NTN workshops were contributing to their classroom teacher:

- Grade level meetings
- The sharing of ideas
- The information and handouts provided
- The modeling of practice

Grade level meetings were “best for sharing and venting,” one Y2 wrote, and “we address ‘just-in-time’ issues,” wrote another. Grade level meetings were reported to be helpful with “specific problems.” Six primary Y2s wrote specifically about the usefulness of grade level meetings when asked what are the things at meetings at best support the classroom teacher and her teaching.

The gaining of new ideas was similarly understood by primary Y2s to be a critical support to their teaching. Respondents wrote about the value of gaining ideas from their colleagues, NTN Coaches and handouts. Particularly important to respondents was obtaining ideas “to use the next day.” Five primary Y2s wrote about “ideas” as an important support they gained from NTN workshops. Four respondents wrote about access to information or handouts as a support.

Y2 primary respondents also identified the modeling approach used in workshops as an important support to their teaching. The modeling of “lessons and strategies” was important to Y2 teachers because “I can see what it looks like.” Four informants wrote about modeling in the reflections.

Learning from Mentoring

Both primary and intermediate and upper grade Y2s were asked in September if they were interested in receiving mentoring support from NTN Coaches. The teachers were then asked what kind of visits they would like to receive. The vast majority of both primary and intermediate/upper grade teachers were most interested in demonstration lessons.

- **Demonstration (31)** *“Yes! The most useful thing last year was watching them teach and through that learning better teaching practices and having the opportunity to observe my kids as learners.”*
- **Observation (11)** *“Yes, demonstrations first, observations later in the year.”*

Teachers from primary and intermediate/upper grades both seemed less comfortable with the idea of being observed than with having demonstration lessons in their classroom. Several wrote that starting with demonstration lessons would make them the most comfortable and that perhaps moving into co-teaching and then observations of their practice later in the year would make the most sense.

The February reflections asked Y2s to note if they had received a mentoring visit this year so far. Of the 17 primary respondents, 14 reported having had a mentoring visit. Respondents reported they had been visited in their classroom between 1 and 6 times, with an average of 2.4 visits.

Primary teachers noted that these visits contributed to their teaching by providing

- Timely and appropriate feedback
- Another viewpoint on their classroom and
- An opportunity to see new ways of teaching math

Respondents suggested that mentoring visits providing timely and appropriate information, stating that NTN Coaches provided them with “immediate feedback,” that was “focused specifically on what I’m doing and need.” NTN Coaches also assisted by giving teachers another viewpoint on their classroom. One Y2 primary respondent stated, “It’s been helpful to get someone else’s perspective on my kids and our community.” In addition, observing NTN Coach demonstration lessons helped mentored teachers to learn new ways to teach mathematics. “It was an opportunity to see someone else teach math in a another way,” one teacher wrote.

Learning to be Teachers of Mathematics⁴

Primary teachers were asked in September: “What impact do you anticipate/hope that participating in NTN Y2 will have on your teaching of mathematics?” Their responses clustered around five topics:

- **Better math teacher (10)** *“Increase my confidence in math; making my students good problem solvers, enjoy math and feel confident in math.”*
- **Help implementing math materials (9)** *“Giving me more confidence in teaching with Everyday Math.” “A better understanding of the use of Saxon math.”*
- **Better (more inspired) teacher (7)** *“I hope I can improve my teaching approach in general.”*
- **Increase mathematical knowledge (5)** *“I hope participation will motivate me to increase my mathematical knowledge.”*
- **Integration of subjects (2)** *“I would like to integrate math and other subjects in literacy and throughout the day.”*

A significant number of primary Y2s (more than 50% of respondents) commented on their low confidence in teaching math, especially compared to literacy. They were also very concerned about getting assistance implementing the specific math materials they were using. They, like the I/U teachers, hoped to improve their math content knowledge.

Intermediate/upper grade teachers were similarly asked about the impact they hoped participation in NTN Y2 would have on their teaching of mathematics. Responses clustered around three topics:

- **Better math teacher (4)** *“I hope I will become more comfortable with teaching math.”*

⁴ February reflections did not include a question focused specifically on the effects of Y2 participation on math instruction and thus no results are included from February.

- **Creativity in teaching math (3)** *“Introduce more creative methods in math.”*
- **Increase mathematical knowledge (3)** *“I hope to feel more comfortable with math content myself.”*

E. Coordination of NTN and EM Activities

This section is based on evaluation questions that tap the extent to which NTN staff expanded efforts to recruit Everyday Math teachers to participate and the extent of coordination of NTN and Everyday Math activities as a result of the partnership fostered in the Chicago Teachers’ Project. At a May 10th, 2005 CTP partners meeting, Marty Gartzman, the Chief Officer of the Chicago Public Schools’ Office of Math and Science, reduced the amount of the grant that the Office of Math and Science would receive and gave the portion of the funding to the New Teachers’ Network. In exchange, he stated that he hoped that NTN staff would focus on more closely coordinating efforts from the NTN math strand with those of the Chicago Math Science Initiative (CMSI). Andy Isaacs, the Co-Director of the University Chicago School Mathematics Project (UCSMP) and the Principal Investigator on the CTP added that this additional money could also be used to recruit more teachers using the Everyday Math curriculum to participate in NTN.

Data suggest that the recruitment of Everyday Math teachers to join the Network did not occur, largely due to the turnover of the NTN staff shortly following the May meeting. Although it was discussed at the meeting that this priority of recruiting Everyday Math teachers and working to coordinate more closely the work of the math strand with that of the CMSI should be shared with the new NTN staff, data suggest that this information was lost in the transition.

When asked about the relationship between the CMSI and NTN, one NTN Coach stated:

[We are connected to the Initiative] only in the extent to which we are working with teachers from CMSI schools. However, our teachers use many curricula and the OMS-supported are among many others.

Another similarly stated:

We would like to be much better connected to the CMSI than we are. It has not happened yet but it is a real priority for us to better coordinate our math work with them.

When asked about the CTP partnership and whether any recruitment of Everyday Math teachers took place to increase their participation in the NTN, the Coaches had also not received this understanding in joining the staff:

Um, not that I am aware of. Was this part of the grant requirements? Either I am unaware or this didn’t happen...

While the message about the recruitment of Everyday Math teachers, the better coordination of NTN math strand work with the UCSMP and the CMSI did not get translated to the newly hired NTN Coaches, they certainly expressed willingness and interest in this. For instance, one NTN Coach talked about how they had hired a former Everyday Math staff member to mentor the Coaches in the materials:

Again, I am going to be totally honest with you, we need lots more math training. I am not a math person...we are learning, learning, learning. We need to know a lot more about the resources out there, about the training, just to understand better. We actually just hired [a former staff member of Everyday Math], she worked at Everyday Math, she helped to write

the curriculum and so she is coming in one on one working with me on how to do Everyday Math because I taught at [a] school where I didn't have Everyday Math so I need training...

Coaches expressed similar interest in learning more about the CMSI, attending workshops and coordinating math work with the district:

I am interested in learning more about CMSI, and possibly attending workshops to learn more about the materials, but it is not a specific focus.

Conclusions and Recommendations

The remaining sections of this data brief provide summary and concluding remarks about NTN Y2 and recommendations for each research question considered.

A. Workshop Format and Quality Considered

As in 2004-05, data suggest that the format and approach of NTN Y2 workshops were of high quality. The high proportion of workshop time spent in small group and full group discussion, the low amount of Coaches "talking at" participants, and the commitment on the part of session organizers to interactive sessions that drew upon, respected and built upon participant knowledge demonstrated the quality of the observed sessions. NTN Coaches built workshop sessions that deeply engaged participants.

Two changes in workshop format increased quality substantially from 2004-05 to 2005-06. These were: a. the increase of the size and math expertise on the NTN Coaching staff; and b. the division of workshop participants into separate sessions for primary teachers and for intermediate/upper grade teachers.

NTN Coaching staff increased from one full time and one part time staff member in 2004-05, to 4 full-time and one part-time staff member in 2005-06. These staff members were hired both because of their particular expertise as either a primary or intermediate/upper grade teacher and, in some cases, because of their expertise in teaching math and science. This expansion of the staff, the deepening of math expertise on the staff and the specialized knowledge of primary versus intermediate/upper grade experts led to substantial improvements in workshop sessions.

In the first place, the division of workshops into separate sessions for primary and intermediate/upper grade teachers resulted in the opportunity to focus on content at a much deeper level, meeting the teachers' needs by more directly focusing on math instruction at their grade level. This was an explicit goal of the NTN staff:

At this point in teacher's careers, they don't want to hear anymore about the younger kids if they teach older kids. It's ok in the first year, because everyone has that management issue but when we start talking about content areas, they don't want to hear about numeracy at first grade when they are at eighth grade and teaching pre-algebra... And so we are critically looking at... what the program was last year which was a catch all for everyone, and how do we maintain what was great from last year and divide it into the two different grade levels...

This decision to divide the sessions was based both on teacher needs as well as on the areas of expertise of the staff: "Just like my expertise isn't in the upper grades, they deserve to have their needs met in their areas," one NTN Coach stated. The hiring of a larger staff, with more diversified areas of expertise, in both grade areas and content focus, allowed for improved quality of workshops through the division of teachers into grade areas allowing for a deeper content focus and the math and science expertise of some of the Coaches to deepen the commitment to math in the workshops.

Recommendations

The improvements made in 2005-06 are substantial and admirable. The continued commitment to workshop quality on the part of NTN staff is evident. The central recommendation in this category is for the continued commitment to improving workshop quality. This process would be assisted through the ongoing use of evaluation of workshop sessions. In addition, workshops will continue to improve as the goals of the math strand are developed in more detail. Staff should continue to revisit and define what are the *goals* of the math strand? From here, a framework can be established, materials and activities chosen, and a coherent program built from the beginning of the year to the end.

Secondly, it is important to note that as in 2004-05, a substantial amount of workshop time is lost in late starts. In observed sessions, between 12.9% and 17.6% of workshop time was lost in late starts. The February reflections collected by NTN staff in the primary session revealed some frustration at this. "PLEASE- start and end meetings on time," one respondent wrote. "Start on time! I would like to start right at 4 and then get out at 6..." another similarly stated. NTN Coaches find themselves in a difficult spot since starting on time means a large portion of participants will miss the opening of the session. Creative problem-solving around this issue is needed to maximize workshop time and to serve participants well.

B. Format and Quality of Training Materials

In 2004-05, math activities were documented as coming from a variety of sources, including websites, district materials, and lessons from different math curricula. Similarly, the 2005-06 workshops and mentoring sessions revealed the same mix of math materials. NTN Coaches clearly demonstrate that they can choose and utilize materials to promote constructivist teaching in mathematics, and that they can do this in a high quality way. What is less clear is if teachers leave their Y2 year with enough knowledge to be able to do the same.

Recommendation:

This recommendation is inextricably linked with one described above about how to improve workshops. The NTN Y2 math strand will continue to improve as the goals of the math strand are developed in more detail. Staff should continue to revisit and define what are the *goals* of the math strand? From here, a framework can be established and then materials and activities chosen that fit into that framework and a coherent program built from the beginning of the year to the end. If this program is built, and teachers can understand the framework, it is possible that they will leave their Y2 experience with a better grasp of the message NTN Coaches are sending them about math instruction and about excellent teaching and management more generally.

C. Role of NTN Coaches in Classrooms

Here, as in the workshop quality described above, there is a notable improvement from 2004-05 to 2005-06. The increase of NTN staff, the widening of the scope of their expertise, and an increased commitment to the math focus of the Y2 strand all contributed to making the mentoring portion of NTN much stronger. Coaches reported actively mentoring between 25 and 40 teachers, committing to between 1.5 and more than three visits across the year. Fourteen of 17 primary teacher respondents reported they had received a mentoring visit and their comments reflect an important positive influence on their practice. Teachers described the usefulness of NTN Coach perspective on their classrooms, of seeing new ways to teach math and of receiving timely and relevant feedback. Mentoring in 2004-05, because the staff was so much smaller, was much less consistent.

In addition, in 2004-05, mentoring on math (rather than literacy) was reported by only a small number of Y2s who received visits. The expansion of these mentoring services and the increased expertise on the staff in mathematics substantially improved mentoring offerings for Y2s in math.

An additional improvement in 2005-06 was the use of a more structured coaching approach, perhaps necessitated by the expansion of the numbers of mentees. Mentoring quality was also improved through the use of pre-conferencing, the sharing of lesson materials and observation forms with teachers and more consistent debriefing after lessons.

On the whole, NTN Coaches simply played a much more active role in Y2 classrooms, especially in mathematics. And, this role was more clearly articulated and structured.

Recommendations:

The critical consideration of coaching logs and anecdotal records from 2005-06 coaching is an essential component of continuing to improve this strand of NTN Y2 work. Taking the time to consider as a team the content, approach, format and structure of mentoring sessions would allow NTN Coaches to continue to grow as mentors and to link NTN mentoring more tightly to NTN workshops. Again, starting with the goals of the math strand and building a coherent workshop plan across the year and then weaving this together with mentoring goals, materials and approaches would make the Y2 experience more coherent and the lessons teachers take with them about management and teaching more explicit.

D. Carryover of Learning into Classrooms

Teachers participating in Y2 came into the workshop in September hoping that their participation would help them to better manage their classrooms, be more comfortable teaching math, and understand math content at a deeper level. Respondents in February rated NTN meetings “very helpful,” giving an average rating of 3.4 on a scale of 4. When asked if NTN complements, complicates or doesn’t impact the other supports in place for teaching, 12 respondents stated that it complemented.

Recommendations:

This aspect of NTN work should be a more explicit focus for NTN Coaches in the coming year. This could be accomplished through the assigning of activities or lessons for Y2s to try out in their classroom with time set aside in workshops to debrief what happened and to look at student work output. Another possibility is the building in of the expectation of eventual observations of all mentored teachers, allowing Coaches the opportunity to better assess the extent to which Y2s are taking lessons learned into classrooms and trying them out. The documentation of what Y2s are learning and taking into their classrooms is a critical part of providing more information for NTN staff assessment of what is working and what is not in workshop and mentoring material. In addition, this documentation is essential to building a research-base for the NTN approach.

E. Coordination of NTN and EM Activities

Data show that although there was the willingness and interest to coordinate the NTN math strand with Everyday Math and Office of Math and Science staff, these formal connections had not yet been fully built. Part of this seems to be a result of the turnover of staff for NTN. Another contributing factor was Everyday Math staff work on the third edition of the materials, which took up an extraordinary amount of time in the summer, fall and winter of 2005-06.

Recommendations:

A renewed commitment to coordinating this work will increase the capabilities of this partnership. Getting NTN staff involved in regular partnership meetings, NTN staff attendance at relevant Everyday Math and Office of Math and Science training, and the exchange of mentoring approach

and materials between NTN, Everyday Math and Office of Math and Science would be a nice start. The responsibility for this falls on all of the partners, including external evaluation, who must help to play this coordinating role.

Appendix I: References

Caine, R.N., & Caine, G. (1991). *Making connections: Teaching and the human brain*. Alexandria, VA: Association for Supervision and Curriculum Development.

Stoelinga, S.R. February, 2005. *Chicago Teachers' Project: The New Teacher Network at the Center for Urban School Improvement*. Chicago: The PRAIRIE Group.

Stoelinga, S.R. April, 2005. *Chicago Teachers' Project: Summative Report*. Chicago: UIC CMSI Evaluation Project.

Appendix II: Data Collection Tools

Center for Urban School Improvement: New Teacher Network Interview with Math Coaches UIC PRAIRIE External Evaluation

Coaching

1. Talk about the mentoring visit I observed.
 - a. Was this session typical/atypical?
 - b. Describe your goals of the mentoring session and the extent to which you think they were fulfilled.
 - c. What are the next steps with this teacher?

2. Describe your role as a math coach.
 - a. What is the process of organizing mentoring visits?
 - b. What activities do you do in teachers' classrooms?
 - c. What are your strengths and weaknesses as a coach?

Format/Content/Quality of NTN Math Workshops

3. How would you describe the format and content of the math workshops you are planning and offering?

4. How would you assess the math content of NTN workshops?
 - a. What have been the strengths of the NTN math sessions?
 - b. What have been the weaknesses of NTN math sessions?

Benefits for Y2 Participants

5. In your estimation, what benefits have participants in NTN gained from the math sessions?

6. Have NTN activities been carried out as originally planned? If not, what alterations have been made and why?

7. What is the relationship between the NTN math work and the CMSI?
 - a. Do you see the goals as aligned?
 - b. Do you coordinate your work with OMS?

Background

8. Talk about yourself. What is your background and your professional path that brought you to NTN?

9. What training have you received as a Coach? How does it compare to the other NTN math Coaches?

Center for Urban School Improvement: New Teacher Network
Written Reflections, September 2005
UIC PRAIRIE Group, External Evaluation Team

1. How did you get involved in NTN? Were you recruited? Did you find information on your own?
2. Tell us why you are here. What do you hope to gain from your participation in NTN Y2?
3. Please fill in the percentages of what you *hope* will be the proportion of time spent in the workshop formats below:

_____% Presentations by NTN staff
_____% Presentations by other instructional experts
_____% Full group activities
_____% Small group activities
_____% Individual reading/work
4. Describe the types of materials you hope are used in NTN Y2 sessions (for example, journal articles, professional books, math texts, assessment books, etc.).
5. Are you interested in receiving mentoring support from NTN Coaches? If so, what would you ideally like them to do in your classroom (for example, observation, demonstration, etc.) to support your teaching in mathematics?
6. What impact do you anticipate/hope that participating in NTN Y2 will have on your teaching of mathematics?

Observation Protocol

Name of program: **Center for Urban School Improvement New Teacher Network**

Title the observation _____

Observer's name _____

Date, scheduled start time _____

Place of observation _____

Collected and Attached

- Agenda
- Name, title, contact information of facilitator(s)
- Lesson plan from facilitator
- Handouts
- Attendance

TIME	TOPIC/AGENDA	DESCRIPTION	TYPE GROUP

Title the observation _____

Date _____

Provide evidence as to the level the seminar fostered the following that day

- 1) Time for reflection on practice --alone and together; written and verbal

- 2) Time for applying/using new ideas
 - a) During seminar
 - b) In their teaching

- 3) Active participation through attendance, discussion, writing, activities

- 4) Discourse around challenging intellectual ideas
 - a) Ideas have relevance to participants' work
 - b) Participants movement from new ideas to constructing original solutions to problems
 - c) Participants communicate their understanding and engagement
 - d) Participants prior ideas/assumptions are challenged and reflected upon in light of new challenging ideas

- 5) Participants are engaged as sources of knowledge and experience

- 6) Participants receive constructive feedback on their work

NTNers, as always, we appreciate your honest feedback about our work together. Your feedback is crucial to our developing activities and meeting your needs. We learn so much about how to organize our program based on your evaluation. Please include any comments you think will be helpful to us!

ARE YOU THE: Y1 or Y2 cohort?(circle one) This is my _____ year teaching.

Are you affiliated with any of the following groups?:

- Teach in Area 15
- AUSL
- UTEP
- Principal was in New Leaders for New Schools
- TFA
- GATE
- Other Alternative Certification Program _____

NTN has several components—**meetings, online support, and for some** (based on your school, when you joined us, your meeting attendance, our capacity) **coaching**. This evaluation is organized around the components, so as best you can, please think of them individual (except for the last few questions!).

WORKING MEETINGS

1. How helpful do you find NTN working meetings?

1	2	3	4
Not at all helpful			Very helpful

2. How would you rate your participation in working meetings?

1	2	3	4
Can't make it to many meetings			Never miss a meeting

3. What are the most helpful things we do at meetings to support you & your teaching? WHY?

4. Which things are the least helpful? WHY?

5. Can you tell us if a particular meeting or activity was especially supportive of you and/or your teaching?

19. Would you be willing to pay a yearly fee to participate in NTN? (Don't worry, we're not charging you! We just want to determine our value.)

YES How much? \$25/year \$50/year \$100/year

NO

MAYBE What's a factor for you? _____

20. Does NTN complement, complicate or not impact the other supports you have in place during your first year of teaching?

Feel free to share ANYTHING ELSE with us, please!