Algebra Connections
Teacher Participant Evaluation

The University of Chicago Survey Lab
http://surveylab.uchicago.edu/

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Introduction

In the 2004-2005 and 2005-2006 academic years Dr. Barbara Radner led a project called "Algebra Connections" that was designed to improve algebra instruction among Chicago Public Schools (CPS) teachers. Two cohorts of teachers took part in the program, one in 2004-2005 and one in 2005-2006. The program sought to enroll sets of teachers from selected schools to create natural support groups within the schools for the participating teachers. Teachers enrolled in the program attended three algebra courses and a single course on formative evaluation during after-school or weekend hours over the September to June school year. In addition, a facilitator from the program visited participating teachers in their classrooms to observe the implementation of the techniques they were learning in the classroom and to provide coaching and assistance as needed. The courses were offered tuition-free; participating teachers earned math endorsement credit for completing the courses.

As part of a larger evaluation of the program, Dr. Radner contracted with the University of Chicago Survey Lab to interview teachers about their experiences with the program. We pursued interviews with 38 teachers, 31 of whom had completed at least one course and 7 of whom had withdrawn from the program prior to the end of the first course. We were able to obtain feedback from 30 of the teachers, 6 of the 7 early leavers (86%) and 24 of the 31 course completers (77%). The overall response to the course was strongly positive; there were also some complaints and suggestions for ways in which the program could be improved.

This report details the data collection process and summarizes the results of the evaluation. Additional information is contained in the following appendices:

Appendix A Pre-test Version of the Questionnaire (with debriefing prompts)
Appendix B Initial Recruitment Letter Text
Appendix C Questionnaire for Year 1 Program Completers
Appendix D Questionnaire for Year 1 Program Early Leavers
Appendix E Questionnaire for Year 2 Program Completers
Appendix F Questionnaire for Year 2 Program Early Leavers
Appendix G Interview Guide for Semi-Structured Interviews
Appendix H Frequencies for Survey Response
Appendix I Summary of Coding for Open-Ended Questions in Main Survey
Appendix J Summary of Points from Open-Ended Interviews

I. Methods

Questionnaire Design

The Survey Lab developed an initial evaluation questionnaire in consultation with Barbara Radner and Justin Speer. The questionnaire was designed for self-administration and we supplied multiple modes for completion: mail, web, or FAX. Research has consistently shown that self-administered questionnaires produce more honest response than interviewer-administered questionnaires when the subject may

be either socially desirable (things people would like others to believe they think or do) or socially undesirable (things people would prefer others not know what they think or do). Because this was an evaluation, we wanted to maximize the opportunity for teachers to give their true opinions, uninfluenced by the tendency to want to seem positive to an interviewer.

We pretested this instrument with two of the teachers who had taken the course. The small universe of teachers meant that we were reluctant to lose any cases, therefore we secured permission from pre-test teachers in advance to fill out the actual survey once final revisions were made. We offered pre-test teachers a separate incentive for their participation in the pretest ($20) and for their participation in the final survey ($15).

We sent email links to each of the pre-test respondents and asked that they not follow the link until the time we called for the interview. The point was to get the pre-test respondent's immediate reactions to the questions as would be true in an actual survey situation. When we called, we had each respondent move through the questions one at a time, reading the question (but not giving us an answer), then responding to our queries about the questions. We asked such things as "Is the question clear?" "Can you rephrase the question in your own words?" or "Are there response choices missing that you would like to see?". At the end of each pretest, we asked the respondent if there were questions they had expected us to ask that we had not. A copy of the pretest questionnaire and the prompts for each question appear as Appendix A. Based on feedback from these pretest cases we revised the original questionnaire for final use.

We adapted the close-coded questionnaire that we developed for four types of case: those from year 1 who completed the program; those from year 1 who left the program before completion; those from year 2 who completed the program and those from year 2 who left prior to completion. The differences between the four versions consisted of the number of evaluation questions for the algebra instructors and the inclusion or exclusion of a question about reasons for withdrawing from the program before it was over. The instructors for the math and evaluation courses that were part of the program were different in each of the two years. Year 1 had two different algebra instructors while Year 2 had a single instructor. Table I.1 below summarizes the differences between the questionnaires.

Table I.1 Summary of Differences between Four Questionnaire Versions for Thirty-two Teachers Completing at least One Course

Questionnaire Version	Target Group	Unique Questions	Questionnaire Location
Main – Year 1 (N=13, 11 completed)	Completers from 2004-2005 cohort	Evaluation of 2 Algebra instructors	Appendix C
Early leaver – Year 1 (N=1, no completes)	Early leavers from 2004-2005 cohort	Reasons for withdrawing Evaluation of 2 Algebra instructors	Appendix D

Main – Year 2 (N=15, 11 completed)	Completers from 2005-2006 cohort	Evaluation of 1 Algebra instructor	Appendix E
Early leaver – Year 2 (N=2, 1 completed)	Early leavers from 2005-2006 cohort	Reasons for withdrawing Evaluation of 1 Algebra instructors	Appendix F

Seven of the teachers dropped out of the program very early, prior to completing even one of the four courses. We decided to pursue these early drop-out cases as open-ended interviews. It was not clear that the general evaluation questionnaire offered relevant questions for those who withdrew very shortly after initial enrollment. Further, we expected that those who had left the program after only a few classes might have more difficulty remembering their initial reasons for enrollment and how the program struck them at the time. Because in-person, open-ended interviews allow for follow-up probes and lengthy explanations, this approach seemed more appropriate as a method for learning why these teachers left the program so quickly. The interview guide used for these cases appears as Appendix G.

Since early leavers had spent very little time in the overall program, and in some cases this period was three and a half years in the past, the interview guide was intended to orient the respondents by asking them to recall how they first heard about the program, what initially attracted them to it, what they remembered about the logistics of its functioning and so forth prior to asking why they left early. Semi-structured interviews allow for conversational follow-up and so do not require pre-testing of language in the manner of fixed choice questionnaires. Experienced interviewers use the cues of the interview situation to encourage the respondent to expand on and explain their answers fully.

Respondent Recruitment

The initial list of participants included e-mail and street addresses for most of the teachers. In cases where such information was not available, we were able to locate some of these pieces of information with web searches and/or calls to various schools. Some of the original numbers provided proved to be disconnected and some of the email addresses were defunct; sometimes we were able to locate a new phone or email address and sometimes we were not. Ultimately, three teachers lacked email addresses, but had street addresses; one teacher lacked a street address, but had an email address; one teacher lacked any current locating information.

The period during which we recruited participants lasted from May 2 to May 23, 2007. We initially mailed an invitational letter (see Appendix B), a paper copy of the survey and a postage-paid return envelope to all respondents with surface mail addresses. We followed this with an email that contained a link to the web version of the survey. We also sent an email version of the letter to those for whom we had an email but no surface mail address. We followed up by phone where possible to make sure respondents had received our materials and to encourage participation.

One person declined to participate. We sent this person a final "Please reconsider" request by mail, but got no response. The others (with phones) all said they would fill out a questionnaire, but many did not. In cases for which we got no response and had no contact with the target person, we visited the teacher's current school to make a personal recruitment attempt or leave a letter in the teacher's school mailbox. We sent email reminders and a second paper questionnaire to non-responders. Later in the field period, we sent those who had still not responded a new email request with an attached copy of the questionnaire. The email text requested that the teacher print the form, complete it and FAX it back to the Survey Lab or, alternately, use the previously sent paper version or follow the link to the web version.

Table I.2 summarizes the contact information that was supplied or was eventually found for each case as well as the mean and total number of recruitment attempts by each mode.

Table I.2 Recruitment Attempts by Mode

Recruitment Mode	N of Respondents with a …	Mean attempts/case	Total recruitment attempts
Phone	Phone Number: 35	3.2	122
Email	Email address: 34	2.3	88
Surface mail	Mailing address: 36	1.3	51
In-person visit	Known school address if otherwise a non-responder: 7	0.1	5

Open-Ended Interviews

For the seven cases in which teachers withdrew from the program prior to the end of the first course, we endeavored to carry out in-person, open-ended (semi-structured) interviews. In two cases, however, these interviews were conducted instead by phone. One teacher had relocated to another state. Another initially declined to participate, but later reconsidered and agreed to speak with us if she could do it by phone. We sent a "thank you" of $25 to teachers who participated in this interview.

Completed Interviews

Table I.3 below summarizes the completion rates and survey modes from among the 31 teachers asked to complete a mail or web survey.

Table I.3 Completion Rates and Mode by Cohort and Duration in Program

Survey Target Group	Total N in group	Completed on Paper	Completed Online	Total Completed	Response Rate
Completers from 2004-2005 cohort	13	4	7	11	85%
Early leavers from 2004-2005 cohort	1	0	0	0	0%
Completers from 2005-2006 cohort	15	6	6	12	80%

Early leavers from 2005-2006 cohort	2	0	1	1	50%
Total	31	10	14	24	77%

A number of the respondents omitted answers to one or two questions in the survey. We did not attempt to retrieve these data as these embedded skips appeared to be deliberate. One survey was submitted partially completed and it appeared the respondent may have mistakenly missed the final page turn. We made an attempt to retrieve the missing data for this case, but had no response.

Table I.4 below shows completion and mode information for the 7 cases of teachers who left the program prior to the end of the first course. We were able to obtain cooperation from all but one of these teachers.

Table I.4 Completion Rate and Mode for Open-Ended Interviews

Personal Interview Target Group	Total N in group	Completed In person	Completed by phone	Total Completed	Response Rate
Withdrew prior to end of first course	7	4	2	6	86%

Coding

The close-coded surveys each included three open-ended response questions:

1. What are the most important things the program did for you?
2. How, if at all, is the program continuing to have an impact on your teaching today?
3. Is there anything else you wanted to say about the program?

Not all the teachers remained within the boundaries of the first two questions, and elements of each of the questions were addressed in the final open-end by a few respondents. Because of the overlap in content, we coded all the open-ended text as a unit rather than individually.

We first read through the answers and came up with a list of categories that seemed to cover the content of the answers. We identified fourteen such categories which are defined in more detail in Appendix I. Next, we assigned two coders to read through the text and apply the codes independently. The two were 86% coincident in their application of the codes, a sufficiently high level of reliability for confidence in the results. The two coders then discussed the 14% of discrepant coding decisions and arrived at a consensus decision. The final codes were appended to the SPSS datafile along with a number of demographic variables regarding participants' years of teaching experience, education and recent training that were supplied by the Principal Investigator.

Open-ended Interviews

Five of the six open-ended interviews were conducted in pairs with one person leading the interview and the other taking notes. We have found this to be a useful way to collect very complete notes without the use of a tape recorder. In our experience, recording an interview results in less candid response and may also provoke higher

rates of refusal in the initial recruitment phase. The refusal conversion phone interview was conducted solo due to the need to get it done at the time the respondent called in rather than at a pre-scheduled appointment.

After completing the interviews, the note-taker wrote up an initial set of notes and the interview leader then read through and added any additional notes. Research staff read through the complete set of notes and pulled out a non-redundant list of all the points made by the participants. This list, dis-identified to preserve confidentiality, appears as Appendix J.

II. Findings

Reasons for Enrolling

The first question in the survey asked respondents why they initially enrolled in the program. The questionnaire included a close-coded list of nine potential reasons based on discussions with the principal investigator and pretests. Six partipants selected "Other" reasons, but only two of these specified what those reasons were. One wrote "general knowledge" and the other said that teaching algebra in 8th grade was a goal for their school.

The distribution of responses to the reasons for enrollment are listed in order of popularity in Table II.1. All but one of the teachers (96%) selected "to improve your math knowledge" as a main reason for having joined the program and three-quarters of the teachers cited "long-term career progress" as a main reason. Roughly two-thirds (65%) were looking for immediate application to their teaching work and a similar proportion (63%) liked the idea of being in a program with colleagues from their school. Slightly less common, but still almost three-fifths of the teachers said that free tuition and math endorsement credit were main reasons to enroll. Finally, A fifth or fewer teachers cited urging by fellow teachers, the desire to meet teachers from other schools or the principal's urging as reasons for having signed on.

Table II.1 Distribution of Reasons for Enrolling in the Program

	Main Reason	Secondary Reason	Not a Reason
To improve math knowledge	96% (N=23)	0% (N=0)	4% (N=1)
For long-term career progress	75% (N=18)	21% (N=5)	4% (N=1)
For immediate application to teaching work	65%* (N=15)	22%* (N=5)	13%* (N=3)
Liked the idea of being in a program with colleagues from school	63% (N=15)	17% (N=4)	21% (N=5)
Free tuition	58% (N=14)	21% (N=5)	21% (N=5)
For math endorsement credit	58% (N=14)	17% (N=4)	25% (N=6)

Other teachers at school who were enrolling urged joining	21% (N=5)	33% (N=8)	46% (N=11)
To meet teachers from other schools	17% (N=4)	42% (N=10)	42% (N=10)
Principal urged enrollment	8% (N=2)	29% (N=7)	63% (N=15)
Other	21% (N=5)	4% (N=1)	75% (N=18)

* One respondent left this question blank

A different way to consider reasons for enrolling in the program is to see how the various reasons, both primary and secondary, hang together among the participants. Factor analysis is a statistical procedure that looks for common variation among a set of variables to test whether or not co-variation suggests some underlying "factors" that might account for the observed pattern of results. It is a data reduction technique. The idea is that many observed behaviors, opinions or experiences may flow from a limited set of underlying predispositions (say "conservativism" vs. "liberalism") or states. Here, we are interested in whether or not the constellation of reasons selected by respondents for enrolling in the program suggests a reduced set of underlying motivational types.

First, we recoded reasons as zero if not selected, one if selected as a secondary reason and two if selected as a main reason. Next we ran a factor analysis to see how, if at all, the responses cluster. Using a varimax rotation and substituting the mean for the one missing value, we show the rotated component scores in Table II.2 below. We have shaded high loadings – those that exceed .50. When questions have a high score on a factor (the range is from 0 to 1), this means they all share variation with an unnamed variable that must be construed by looking at the content of the items that load together. A factor analysis program looks for the maximum shared variance between items, then takes this "explained" variance away and iterates through again to see if there is a second factor. When there is little residual variation left to be explained (the standard cutpoint, used here, is an eigenvalue of less than 1.0), the program ceases to identify factors. An unrotated factor analysis assumes the factors are orthogonal to each other – that they share no variance. This is a very strict and often unrealistic assumption. Rotation allows some correlation between factors, a relaxed assumption that is often a more accurate reflection of characteristics in the real social world.

Table II.2 Factor Analysis Output for Reasons First Enrolled

	Rotated Components		
	1	2	3
Liked the idea of being in a program with colleagues from school	**.826**	.192	.054
Other teachers at school who were enrolling urged joining	**.807**	.041	.075
Free tuition	**.775**	.223	-.025
Principal urged enrollment	**.553**	.171	-.237
Wanted to improve math knowledge	.206	**.851**	.016

For long-term career progress	.220	**.815**	.116
For immediate application to teaching work	.081	**.726**	-.042
To meet teachers from other schools	.176	.179	**.826**
For math endorsement credit	-.213	-.093	**.777**

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

We identified three clear factors. The first factor loads on the appeal of being part of a program with colleagues from one's school, the encouragement of fellow teachers to enroll, free tuition, and the encouragement of the principal to enroll. We might consider this a "school support" factor: colleagues are doing it and encouraging it; the principal is encouraging it; the program is being funded.

The second factor loads on the drive to improve oneself and become better at one's job: a desire to increase math knowledge, for long-term career progress and for immediate application in the classroom. This seems to be a "job investment – program content" factor.

Finally, the third factor loads on meeting teachers from other schools and math endorsement credit. It is quite interesting that the math endorsement credit loads with a more general social motivation (non-content, non-work group – loadings on those items are negative or close to zero) and not with a "job investment" factor. This casts the meaning of the math endorsement motivation for enrollment as more of a credential than an interest in the substance of the training. We could label this the "fun credential" factor.

Next, we looked to see if these three motivational orientations were correlated with the respondent's evaluations of the program. In a question toward the end of the survey, we asked respondents to rate the value of different program elements: the graduate courses in algebra, the assessment course, the student activity guides, the teaching guides, the formative evaluation guides and the project facilitator visits.

When we ran correlations between the three motivation factors and the value that teachers place on program features, we found no significant differences except in the case of teaching guides. Those who rated high on the "job investment – program content" factor were significantly more likely than those who rated high on either of the other motivational factors to highly value the teaching guides as one element of the program.

A correlation of the factors with responses to an open-ended prompt for what the respondent believed were the most important things the program did for him or her showed significant associations between the "school support" factor and mention of the program as a good source of useful materials and as a way to connect with experts outside the school.

When we ran correlations between these three factors and teacher training and education characteristics (whether or not the respondent has a master's degree, whether the degrees are in a field of education or something else, years at the current

school, years teaching, years in the Chicago Public School system, professional development during the past year, whether or not the teacher's students receive additional math instruction during or after school, whether or not the teacher operates in a self-contained classroom and the number of hours spent teaching math), the only significant association is between the "fun credential" factor and a teacher having a degree outside the field of education. Teachers with post-secondary degrees in communications, business, marketing and criminal justice are more likely to have a high rating on the "fun credential" motivation factor than teachers whose post-secondary degrees are all in education or education-related fields such as reading specialist or curriculum development.

When we ran correlations between these three factors and a code for whether or not the respondent volunteered any global positive assessment of the program in the open-ended questions, we see a significant and negative association with the "fun credential" factor. Teachers with a "fun credential" motivation for enrolling in the program are significantly less likely than other teachers to offer an unprompted global positive comment about the program such as "it is an excellent program" or "it was a great opportunity!" or "I would and have definitely recommended this program to others who have been offered the chance." At the same time, although teachers in all three groups have similar proportions of negative and positive ratings overall in the questionnaire, those who rate high on the "fun credential" enrollment motivation are significantly more likely than the others to give the top positive score when selecting a positive response.

As a second measure of motivation for taking part in the program, we asked respondents whether or not they would enroll again if they had it to do over. One respondent left this question blank, but the remainder all answer "yes". Table II.3 summarizes the reasons the participants supply for why they would enroll again.

Table II.3 Reasons Why Participants Would Enroll Again Given the Chance to Do it Over

	Main Reason	Secondary Reason	Not a Reason
Increased own knowledge, skill	95% (N =20)	5% (N =1)	0% (N =0)
Practical value in the classroom	91% (N =21)	4% (N =1)	4% (N =1)
A chance to communicate and share ideas with teachers outside your school	56% (N =13)	35% (N =8)	9% (N =2)
A group-building, bonding experience with teachers inside your school	52% (N =12)	44% (N =10)	4% (N =1)
Credential for advancement	82% (N =18)	18% (N =4)	0% (N =0)
Something Else	9% (N =2)	0% (N =0)	91% (N =21)

*Total N's vary as some respondents left items blank

There is a strong and significant correlation between selecting "practical value in the classroom" and the "job investment – program content" factor as a reason for actual

enrollment. None of the other reasons for the hypothetical choice of doing it again showed a significant relationship with the initial motivation factors.

Table II.4 Factor Analysis Output for Reasons Would Enroll Again if Had it to Do Over

	Rotated Components	
	1	2
A chance to communicate and share ideas with teachers outside your school	**.874**	.038
A group-building, bonding experience with teachers inside your school	**.740**	.367
Credentials for advancement	**.671**	-.325
Practical value in the classroom	-.055	**.842**
Increased own knowledge, skill	.084	**.804**

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

If we run a second factor analysis of reasons for retrospectively making the decision to enroll, two clear factors emerge (see Table II.4), one that loads on knowledge, skill and applied value and the other that loads on social concerns, networking and credentials. The "knowledge, skill, applied value" factor correlates significantly with the "job investment – program content" factor from the first set of questions. The "fun credential" factor and the social concerns, networking and credential factor are modestly correlated, but this does not rise to the level of statistical significance.

The small total number of cases limits the degree to which we can make strong statements about these results. Nonetheless, the data suggest that for this set of participants there seem to have been two primary orientations for enrollment. One is focused on social and more narrow credential-based job considerations and the other is more fundamentally associated with a desire for increased knowledge, skill and practical value in the classroom.

Overall Satisfaction with the Program

Overall, participating teachers were very positive about the program. Tables II.5 and II.6 show the distribution of top scores and negative scores across the eighteen rating variables that were included in the survey. We see that about a quarter of the teachers assigned the top positive score for about 90% of the rating items and over half assigned the top positive score for about three-quarters of the rating items. Two-thirds of the teachers gave no negative score for any of the 18 possible places they might have assigned one and an additional 17% gave only one negative score. Thus, 84% of participants assigned zero or one negative score.

Table II.5 Proportion of Eighteen Rating Variables Given the Top Positive Score

Proportion of 18 Rating Variables Given the Highest Positive Score	Frequency	Percent	Cumulative Percent

100 %	1	4%	4%
94 %	2	8%	13%
89 %	3	13%	25%
83 %	2	8%	33%
78 %	1	4%	38%
72 %	4	17%	54%
67 %	5	21%	75%
61 %	3	13%	88%
56 %	1	4%	92%
50 %	1	4%	96%
39 %	1	4%	100%
Total	24	100%	

Table II.6 Proportion of Eighteen Rating Variables Given Any Negative Score

Proportion of 18 Rating Variables Given Any Negative Score	Frequency	Percent	Cumulative Percent
33%	1	4%	4%
28%	1	4%	8%
22%	1	4%	13%
17%	1	4%	17%
6%	4	17%	33%
0%	16	67%	100%
Total	24	100%	

The open-ended comments reinforce this overall positive evaluation. Among those who gave any response in any of the three open response fields, almost two-thirds (64%) volunteered that it was a "great program" or "an excellent program" or provided some other enthusiastic positive global assessment (the entire range of responses to the open-ended questions can be found in Appendix H with the rest of the survey response frequencies; Appendix I details how this code was assigned).

Teachers who left the program early, before the end of the first course, included those who were not positive about the program as well as those who were enthusiastic despite having withdrawn so early. Four of the six early leavers we interviewed left the program due to reasons outside the program itself – health/accident and logistical problems that arose after enrollment or a lack of time due to competing demands of the National Boards that several faced at the same time. Three of the four who left for unexpected reasons having to do with factors outside the program were still quite positive about the program, two especially so. One of the four gave the program more of a mixed review.

Two of the early leavers left because of the program itself. In one case the respondent did not believe the program met her needs because the materials were beyond the capabilities of her particular student population (particularly in assumptions about basic reading and writing skills). In the other case, the teacher felt the material was over her head and she felt lost.

Teachers who answered the close-coded survey were asked one open-ended question about the most important things they took away from the program. We coded these answers into a series of categories. Table II.7 summarizes the numbers of respondents with the various elements listed. More detailed definitions of the codes can be found in Appendix I.

Table II.7 Most Important Program Benefits Mentioned in Open-ended Response

Open-ended response mentioned …	N of Cases*	Percent of Cases
Supplying new ideas and strategies for math teaching	18	82%
Improving teaching skills	12	55%
Supplying useful materials	11	50%
Improving math skills	7	30%
Motivating the teacher to take on higher teaching goals, get more education, and/or enjoy teaching math	5	23%
Helping the teacher see the relevance of math to specific grade levels and/or to other subjects	4	18%
Connecting the teacher to peer math teachers	4	18%
Boosting the teacher's confidence in understanding/teaching math	3	14%
Lowering student anxiety about math through teacher strategies	3	14%
Connecting the teacher to experts and resources outside the school	3	14%
Helping the teacher plan a teaching program	1	4%

*22 of the 24 respondents supplied an open-ended response.

The most frequently mentioned gains from the program were new ideas and strategies for math teaching and/or improving the respondent's teaching. Half the teachers also made reference to the useful materials with which the program supplied them. Varying proportions of teachers (but less than half) mentioned a number of other program benefits including improved math skill, higher levels of motivation, higher levels of comfort with math and math teaching, and connections with teaching peers and outside experts.

Evaluation of the Instructors and Facilitator

One feature of the program was improving the algebra skills and knowledge of the teachers in three algebra courses. These courses were taught by two different instructors in the first cohort and by a single instructor in the second cohort. In addition, there was a fourth class in assessment taught by a single instructor. Table II.8 below provides summary information for the ratings respondents gave each instructor.

The ratings were quite high overall. On a scale of 1-5, with 1 as poor and 5 as excellent (3 is the neutral midpoint) the mean scores were all above 4; two were above 4.5 and one was a perfect 5. None of these instructors received any score on the "poor" side of the scale. The algebra instructor in year two was especially popular.

Table II.8 Ratings for Course Instructors

	Algebra Instructors		Assessment

Rating	Year 1 LN		Year 1 JL		Year 2		Instructor	
	N	Percent	N	Percent	N	Percent	N*	Percent
1 Poor	0	0%	0	0%	0	0%	0	0%
2	0	0%	0	0%	0	0%	0	0%
3	2	18%	1	9%	0	0%	1	4%
4	4	36%	1	9%	0	0%	5	23%
5 Excellent	5	46%	9	82%	13	100%	17	73%
Mean Score	4.3		4.7		5.0		4.7	

* One respondent left this blank

As a different part of the program, a facilitator visited the classrooms of the teachers enrolled in the courses to observe and coach as teachers used program materials and implemented the approaches they were learning. Table II.9 summarizes the ratings of the facilitator.

Table II.9 Rating the In-class Facilitator

Got as Much of Facilitator's Time as Needed	Rate Facilitator's Helpfulness	N*	Percent	Effect of Facilitator on Value of Courses & Materials	N	Percent
Yes 92% (N = 22)	1 Poor	1	5%	Increased quite a bit	11	50%
	2	1	5%	Increased somewhat	8	36%
	3	2	9%	No added value	3	14%
	4	5	23%			
	5 Excellent	13	59%			
	Overall Rating	4.3‡				
No 8% (N = 2)	1 Poor			Increased quite a bit	1	50%
	2	1	50%	Increased some		
	3			No added value	1	50%
	4					
	5 Excellent					
	No interaction	1	50%			

* One respondent left this blank

‡ If the "2" score from the respondent who did not get as much of the facilitator's time as needed is incorporated into the overall rating, it falls to 4.2

Twenty-two of twenty-four respondents (92%) reported that they got enough of the facilitator's time while two (8%) did not. One of the latter two reported never having interacted with the facilitator. Across all teachers who did interact with the facilitator, the mean rating on a 1-5 scale from "poor" to "excellent" was 4.2. Among those who got enough of the facilitator's time, the mean rating was 4.3. It appears however, that the overall rating of the facilitator by the teacher who reported not getting enough of that program person's time (a rating of "2" – between average and poor) was a commentary primarily on this fact since the same teacher said the facilitator increased the value of the courses and materials quite a bit.

Four of all the teachers (17%) reported that the facilitator added no value to the courses and materials; eight (33%) reported that the facilitator increased the value of the cources and materials somewhat; 12 (50%) reported that the facilitator increased the value of the courses and materials quite a bit.

In order to create natural local support groups, the Algebra Connections program was designed to recruit multiple teachers from each participating school. Teachers were asked not only to evaluate the value of the coordinator as a program feature that might enhance the value of the courses and materials, but also to evaluate what effect the facilitator had on the level of cooperation among teachers at the school. Results appear in Table II.10.

Table II.10 Effect of Facilitator on Cooperation Among Teachers at each School

Effect of Facilitator on Teacher cooperation						Effect persists?	
	N	Percent		N	Percent	Yes	No
Created or boosted team spirit	17	71%	Created	8	47%	86% (N=12)*	14% (N=2)*
			Boosted	8	47%		
			Both	1	6%		
Reinforced existing divisions or hierarchy	2	8%				100% (N=1)*	0% (N=0)*
No effect	5	21%					

* Some could not answer because they no longer teach at the same school where they taught during the program.

Seventy percent of the participants reported that the facilitator either created or helped to boost the teacher's team spirit or both. Just under 10% believed the facilitator instead reinforced existing divisions or hierarchies among teachers; none believed the facilitator created new divisions or hierarchies. A fifth of the participating teachers believed there was no effect of the facilitator on the level of cooperation among teachers at the school.

Many of the teachers were no longer at the schools where they had originally enrolled in the program, so could not rate whether or not the facilitator's effect on cooperation had persisted over time. Of those who remained at their schools, 86% believed the positive effect persisted, compared with 14% who believed it had not. The one teacher who said the facilitator had reinforced existing divisions that remained at the same school also said this negative effect had persisted over time.

Course Ratings

Overall ratings of the algebra and assessment courses are shown in Table II.11. Teachers gave the algebra courses high ratings for providing teaching strategies and useful teaching resources. Three-quarters of the teachers also gave these classes the highest rating for helping them to learn their subject matter better. The algebra courses were, however, rated less highly overall for linking participants to a support group of teachers.

Table II.11 Rating the Benefits of the Algebra and Assessment Courses

	Not at all	A little	Moderately	Very much	Total
Algebra Courses:					
Helped to learn subject matter better	0% (N=0)	0% (N=0)	25% (N=6)	75% (N=18)	100% (N=24)
Provided teaching strategies	0% (N=0)	0% (N=0)	8% (N=2)	92% (N=22)	100% (N=24)
Linked to support group of teachers	4% (N=1)	13% (N=3)	29% (N=7)	54% (N=13)	100% (N=24)
Provided useful teaching resources	0% (N=0)	0% (N=0)	4% (N=1)	96% (N=23)	100% (N=24)
Assessment Course:					
Provided useful classroom strategies	0% (N=0)	5% (N=1)	23% (N=5)	73% (N=16)	100% (N=22)*
Linked to support group of teachers	9% (N=2)	5% (N=1)	36% (N=8)	50% (N=11)	100% (N=22)*
Increased teaching effectiveness	0% (N=0)	10% (N=2)	19% (N=4)	71% (N=15)	100% (N=21)*

* Some respondents left these blank

This echoes what we heard in the open-ended interviews. In those discussions, teachers reported that participants generally interacted within their own school groups in the algebra courses rather than linking with teachers from other schools. Still, about half the participants found the algebra courses to be excellent in this respect as well.

Although ratings of the assessment course were still high – 70% of participants gave the class top marks for increasing their teaching effectiveness and also providing useful classroom strategies, there were also several low rankings on these measures, which was not true for the substance ratings of the algebra courses. As was true for the algebra courses, this class got lower marks for linking participants to a support group of teachers than for the course content, with only about half choosing the top category for this measure.

We looked at the question asking whether other teachers from the respondent's school remained in the program throughout, or whether the respondent was left as a singleton in the program due to others dropping out, to see if this could explain the two cases who felt the program did not at all link them to a support group of peers. It did not. There were two teachers among the completed cases who were left as singletons and both of these scored the courses as moderately helpful in linking them to a support group of other teachers.

We also looked at the potential association between the course ratings and the effort teachers put in. The results are summarized in Tables II.12 and II.13.

Table II.12 Mean Rating Scores by Teacher Effort on Homework*

	Did All Assigned Homework		Turned in All Assignments on Time	
	Yes (N= 18)	No (N=6)	Yes (N=15)	No (N=9)
Algebra Courses:				
Helped to learn subject matter better	3.7	4.0	3.7	3.9
Provided teaching strategies	3.9	4.0	3.9	3.9
Linked to support group of teachers	3.2	3.7	3.3	3.4
Provided useful teaching resources	3.9	4.0	4.0	3.9
Assessment Course:				
Provided useful classroom strategies	3.6	4.0	3.7	3.6
Linked to support group of teachers	3.1	3.8	3.2	3.4
Increased teaching effectiveness	3.5	4.0	3.6	3.6

* The ratings are on a 1-5 point scale from 1=Not at all to 5=Very much.

Table II.13 Mean Rating Scores by Class Attendance*

	Missed Any Classes	
	Yes (N= 10)	No (N=14)
Algebra Courses:		
Helped to learn subject matter better	3.8	3.7
Provided teaching strategies	3.9	3.9
Linked to support group of teachers	3.1	3.5
Provided useful teaching resources	4.0	3.9
Assessment Course:		
Provided useful classroom strategies	4.0	3.8
Linked to support group of teachers	3.4	3.5
Increased teaching effectiveness	3.0	3.8

* The ratings are on a 1-5 point scale from 1=Not at all to 5=Very much.

Teachers were asked how much of the assigned homework they completed, how much homework they turned in on time, and how many class sessions they missed. Those who reported completing all assigned homework and turning all homework in on time had predominantly *lower* ratings for the courses than those who reported either not completing some assignments or turning them in late. Conversely, those who reported missing any class sessions had more mixed results with some running in each direction.

The numbers are too small for any statistical significance, but lack of (self-reported) effort is clearly *not* systematically associated with lower ratings in this group of participants.

Continuing Effect on Teaching Strategies

We asked program participants to respond to an open-ended question about what ways, if at all, they continued to make use of anything from the program. About three quarters of the teachers who wrote in an answer volunteered that they continued to make use of teaching strategies they learned, and about three fifths that they continued to use materials (manipulatives and games) that had been disseminated to program participants (see Table II.14).

Table II.14 Respondent Report* of Continued Use of Strategies Learned in Program or Materials Disseminated by Program

	Yes	No	Total*
Continued Use of Strategies	73% (N=16)	27% (N=6)	100% (N=22)
Continued Use of Materials	59% (N=13)	41% (N=9)	100% (N=22)

* Two respondents left this open-ended field blank

In addition to this open ended question, the survey presented participants with a close-coded set of prompts to rate teachers' current relative use of specific techniques as a result of the program. Respondents were asked if, due to having enrolled in the program, they now used each technique more, less, or the same as in the past. The results are found in Table II.15.

Table II.15 Relative Use of Teaching Techniques Since Enrollment as a Result of Program Participation

What was the effect of this program on your use of the following techniques?	A lot more	A little more	No effect	A little less	A lot less
Peer interaction teaching methods	63% (N=15)	33% (N=8)	0% (N=0)	4% (N=1)	0% (N=0)
Student initiated cognitive and meta-cognitive techniques	75% (N=18)	21% (N=5)	0% (N=0)	4% (N=1)	0% (N=0)
Practice	75% (N=18)	21% (N=5)	0% (N=0)	4% (N=1)	0% (N=0)
Teacher-initiated instruction*	52% (N=12)	35% (N=8)	4% (N=1)	4% (N=1)	4% (N=1)
Teaching to multiple learning styles	67% (N=16)	29% (N=7)	4% (N=1)	0% (N=0)	0% (N=0)
Reframing techniques	58% (N=14)	29% (N=7)	4% (N=1)	4% (N=1)	4% (N=1)
Applications and practical examples	67% (N=16)	33% (N=8)	0% (N=0)	0% (N=0)	0% (N=0)
Affective domain	50% (N=12)	33% (N=8)	13% (N=3)	4% (N=1)	0% (N=0)

Assessment*	50% (N=12)	33% (N=8)	13% (N=3)	0% (N=0)	0% (N=0)
Teacher instruction of cognition	58% (N=14)	38% (N=9)	4% (N=1)	0% (N=0)	0% (N=0)

* One respondent left this question blank.

Overall there were few reports of less use of listed techniques and many reports of more use of listed techniques due to program participation. The biggest self-reported effects were on use of student-initiated cognitive and meta-cognitive techniques (have students keep math journals, write out steps, draw pictures/diagrams of problem-solving process, create their own problems, etc.) and having students do more practice applying their skills to new problems. The second largest effects were on teaching to multiple modalities (manipulatives, models, visuals, technology) and using real-world applications and practical examples. Other techniques showed less of a bump in use.

Although there was little reporting of declines in the use of the listed techniques, those with the most reports (just two cases) of less use were teacher-initiated instruction (one-on-one teaching, modeling problems for students, small group instruction) and reframing techniques (breaking problems into smaller parts, fewer or simpler problems, re-stating the problem, re-teaching lessons with different approaches). The most "no effect" reports (3 cases) are associated with techniques in the affective domain (positive reinforcement, verbal encouragement and patience).

Relative Value of Program Components

We asked the program participants to rate the value of different program components.

Table II.16 Comparative Program Component Ratings

On a scale of 1 to 5,where 1 is the least valuable and 5 the most valuable, ratings of the following program components:	Mean Score	N of Cases*
Graduate Courses in Algebra	4.8	22
Student Activity Guides	4.7	23
Teaching Guides	4.5	24
Course in Assessment	4.4	23
Formative Evaluation Guides	4.3	24
Project FacilitatorVisits	3.6	23

* Several respondents left some of these blank

The algebra courses received the highest average rating with fully two-thirds of the participants rating it as "most valuable". Table II.16 lists the mean ratings for the various program elements in descending order of scores. The project facilitator visits were rated as the least valuable aspect of the program overall.

III. Early Leaver Results

We conducted six open-ended interviews with early leavers – those who withdrew from the program prior to completing the first course. By definition these respondents

had limited experience with the program. However, because they were able to answer at more length and elaborate their answers in response to our probes, their answers provide some evaluative dimensions that are absent from the close-coded surveys.

We began our interviews by asking these respondents how they first heard about the program and what initially attracted them to enroll. All had learned about the program at their schools and most were attracted by the work "connections." Apparently there had been a previous "connectors" program that was popular among teachers and the term "connections" sounded as if this program might be a continuation of that earlier one. At least one teacher felt pressured into enrolling by the school's principal and resented this. Another thought the program was going to supply "fun ways to teach math." Finally, several respondents felt they needed the program to get up to speed in their math skills. One of these felt weak in math so was unsure about teaching it without further training; the other was looking to update an outdated math teaching approach.

An interesting pattern that emerged from the answers we got is that Chicago Public School teachers are moved around from one grade level to another and from one subject to another and only learn about their assignments for one year at the end of another. Although no respondent raised this explicitly as an issue, it became clear through our discussions that this fact reduces the value of investing in teaching skills devoted to a single subject or grade level and also renders the timing of enrollment in courses problematic. One valuable aspect of the Algebra Connections program was the immediate applicability of lessons in the courses one day to classroom teaching the next. One reason for early dropout of a teacher was the mismatch between the curricular timing of algebra in her classroom and the program.

Discussions of why and how the respondents enrolled also revealed that recruiting groups of teachers from the same school appears to be a valuable program characteristic for some. This program feature provides teachers with a ready-made support group and a set of colleagues with whom to compare notes concerning how the program strategies translate for various age groups and teaching styles. The summary notes below illustrate this (in all notes "R" stands for "respondent"):

> Four other teachers from R's school attended, of whom she was closer to two. The participation of those two made R more enthusiastic about program, but R did not know until attending who would be in program for sure. R liked knowing others beforehand for the group work portions of course
> About five teachers from R's school participated. R really liked being part of a group and would have been somewhat scared going alone. R implies participation was linked to other teachers. This R said she really liked the immediate feedback she could get from co-participants in the course about how different approaches were working in their classrooms. The course was easier and better because of the others at the same school participating. R became closer to the other participants, and they got to know one another better from the program.

However, it also became clear that the success of group participation was contingent on pre-existing dynamics among staff inside the schools. Consider the following summary note from one interview:

> R enrolled completely independently but found out after dropping out that another teacher from R's school had enrolled. Had R known of other teacher's presence, R might have stayed longer. The other teacher later said R should have stayed and that he could have helped R with the challenging course materials. The other teacher said the course did eventually teach different ways of teaching math in the classroom and said he would have helped R had R remained in the program.

When we asked for the reasons that respondents withdrew so early from the program, few mentioned the difficulty level of the courses. However, one respondent felt the material was over her head and she believed she was alone in feeling this way. Another mentioned that when teachers at the school who were *not* enrolled asked about it, they most commonly wanted to know how much homework there was and how difficult the homework was. A third respondent reported that non-participants from her school were surprised at the level of the course materials even though she herself thought it was typical for 8th grade. These responses along with several open-ended comments from the main survey imply that expectations among math teachers at some schools may fall below grade-level learning.

The role of the facilitator in the program was not clear to all participants, at least not those who withdrew very early. While some extolled the value of this program feature both because it forced teachers to implement strategies right away and because it provided coaching with doing so, others believed the facilitator was meant as an observer to judge the teacher. Those that withdrew most quickly were the most likely to hold this latter perception.

Most of those who remained in the program long enough to obtain materials were quite pleased with these. Most also seemed to like program instructors quite a bit.

The respondents who withdrew from the program early supplied some criticisms of the program as well as some suggestions for improvement. Problems they raised can be categorized as having to do with overall workloads, logistics, and program fit.

<u>Overall workloads</u>

- Several of the teachers who dropped out early were undertaking their National Boards, which are extremely time-consuming. As a matter of policy it might be prudent not to recruit teachers whose Boards will overlap with the program.
- One teacher was covering after-school programs and pointed out that taking evening courses makes for a very long and stressful day.
- One of the teachers emphasized the very high work load that is normal at her school due to very large class sizes, under-prepared students and lack of parent involvement. This teacher noted being exhausted by the end of a regular school day and thus finding it difficult to muster the energy for evening coursework and homework of her own.

- Another teacher found the program added enough stress to her life that she needed to withdraw for health reasons. One teacher suggested that the program should be shorter and less demanding.

Logistical issues

- Several of the early leavers pointed out that the programs were held at the DePaul campus which was difficult to get to at the time of day that classes were held – around rush hour. Although parking was provided, it was still hard to make it to class on time. One suggestion was to organize groups of nearby schools and teach the program in rotation among them so that none had to travel very far.
- One respondent said that the class voted on days and times to meet for class and that others agreed on Saturday. This was not a time this respondent was willing to consider. Scheduling a class time for a set of teachers whose regular days end at varying times and who have varying commitments outside of work is quite a challenge.

Program fit

- A number of teachers had complaints about particular features of the program that did not fit well with their classrooms. One pointed out that students at her school have extremely limited reading and writing ability (far below grade level), thus rendering many of the math program strategies impossible. This, however, contrasts with the remarks of others who felt the program helped them to organize math teaching for various abilities and grade levels.
- Another disliked the surveys that students had to complete, citing the fact that these took an hour or so out of the day and were, she felt, likely to be unreliable in any case because the students quickly tired of them and wrote anything just to finish. This teacher suggested that, in her classroom, a group discussion of the survey issues would have been more efficient and productive. This complaint is in contradistinction to another participant who believed the surveys helped her to identify where students were going wrong in their work.
- Several of the teachers were particularly pleased with the group-oriented style of the courses and program more generally. However, one participant did not favor group work as a personal learning style and wished the program had also made more room for independent learning. Several of the teachers who left the program early suggested that more complete information about the syllabus and program set-up should be distributed prior to enrollment.
- One teacher believed the program material was simply too hard for her and that her ability level could not be accommodated within the courses.

Summary

The overall tone of the feedback from teachers enrolled in the Algebra Connections program was strongly positive. This was particularly true of teachers who remained in the program to its conclusion, but even those who dropped out of the program, some quite early, had some very good things to say about the program. Several of the early leavers seemed to have taken away useful strategies that they continue to employ in their teaching work based on even limited time in the program.

Analysis of the reasons respondents provided for enrolling in the program indicate that there were, at least for this group, two different orientations among program participants. One group was focused on social interaction and credentials. A second group was focused on acquiring new knowledge, skills and putting these directly into practice. It would be interesting to be able to measure whether these teacher orientations were in any way associated with student learning outcomes.

Based on informal conversations with respondents during our phone recruitment efforts and the personal interviews we conducted with the early leavers, a strong teaching staff is an important aspect of this overall high level of satisfaction. This impression is reinforced by high marks given to those who taught the different courses that were part of the program. Some of the algebra instructors were more popular than others, but all got consistently positive scores. Maintaining strong teaching staff is likely to remain the backbone of a successful program in the future.

The facilitator was less popular among some of the teachers, but also had a strong positive rating overall. One of the personal interview respondents pointed out that the facilitator "forced" teachers to implement the new methods they were learning – not with force, actually, but by making it awkward for teachers to postpone familiarizing themselves with the materials and trying them out with their students. Since they knew the facilitator was coming, the teachers took the time to get ready and put the techniques into practice. She said it was probably one of the greater strengths of the program to have this sort of "enforcement" in place because otherwise busy teachers would simply put off implementation indefinitely. It could be that teachers were more varied in their assessment of the facilitator because of the implicit policing aspect to her role.

The main downside of the program that teachers identified was the unavoidable fact that it added work and hours to jobs that may already be stressful and time-consuming. The greatest burden falls on the most dedicated teachers who spend time with students or in programs before and after school as well as during the regular school day. However, these data are consistent with the conclusion that teachers who were motivated by a real interest in learning the material and applying their knowledge immediately to the classroom were also those who found the program most rewarding.

Appendix A – Pre-Test Questionnaire
Prepared by the University of Chicago Survey Lab

Instructions in italics are to be read aloud to the pretest respondent on the phone. The remainder is text the respondent should be seeing on his or her own copy.

Professional Development Program Evaluation Survey

I want to thank you for agreeing to help us with pre-testing this questionnaire. We are testing to make sure the questions work, so we are not looking for your actual answers now, just trying to see if the questions are worded and formatted well.

The way this works is that I will ask you to look over questions one at a time to get your initial reactions. Please don't read ahead because we are looking for problems that might arise on the first read rather than the second or third. I will ask you questions about the questions.

Some of my questions are stupid and obvious – please bear with me. The difficulty is that since we put this together, all the questions seem reasonable and clear to us even though this may be far from true. Our questions are NOT a commentary on your ability to comprehend, but rather an effort to identify problems that we can't even see any more.

As we go, please feel free to add your own comments about anything that seems unclear, that would be difficult to answer or that you think nobody would answer honestly.

[Did you get the attachment? Great – is it OK to start?]

Appendix A – Pre-Test Questionnaire
Prepared by the University of Chicago Survey Lab

1-1. Can you look over the first question and tell me how you think the rating works – that is, when would you check the boxes coded 1, 2 or 3?

1-2. Can you now scan through the reasons and tell me if you think any are hard to understand or might be a little off-target?

1-3. Are any reasons missing?

First are some questions about your enrollment in the program.

1. Please rate each of the following as a reason you enrolled in the program

	Main reason	One of several reasons	Not a reason
A. Appeal of being in a program with colleagues from your school	☐1	☐2	☐3
B. To improve your math knowledge	☐1	☐2	☐3
C. To meet interesting teachers from other schools	☐1	☐2	☐3
D. Other teachers at your school who were enrolling urged you to join them	☐1	☐2	☐3
E. Your principal urged you to enroll	☐1	☐2	☐3
F. Free tuition	☐1	☐2	☐3
G. For your long-term career progress.	☐1	☐2	☐3
H. For immediate application to teaching work	☐1	☐2	☐3
I. For math endorsement credit	☐1	☐2	☐3
J. Other, please specify _____	☐1	☐2	☐3

2-1. OK, question 2 takes a minute to read. Can you read it and rephrase the gist of it in your own words?

2. Which of the following was true for you?

☐1 You enrolled in the program with others from your school and continued to have colleagues enrolled throughout the time you stayed in the program

☐2 You enrolled in the program with others from your school, but all others dropped out leaving you as the *only* teacher from your school in the program

3-1. Any problem with question 3?

3. Are any of the teachers with whom you first enrolled still at your current school?

☐1 Yes
☐2 No

4-1. Read through question 4 and tell me if you recall the materials to which this question refers. Can you visualize what we're talking about here?

4. As part of the program, you received guides to organize analysis of student math status such as the "math path" and ISAT Problem Solver guides, and charts to use to plan your instructional priorities. Please rate these materials below.

	Not at all			Very
A. Was it easy to use the guides?	☐1	☐2	☐3	☐4
B. Did you find the use of the guides helpful at the time?	☐1	☐2	☐3	☐4
C. Do you still find the materials helpful?	☐1	☐2	☐3	☐4

Next I would like you to read the transition statement about the project facilitator and scan through questions 5, 6 and 7. Let me know if you could easily answer these questions.

As part of the program, a project facilitator made visits to each school to assist teachers with using the program resources. The following questions ask for your evaluation of this aspect of the program.

5. Did you get as much of the facilitator's time as you needed?

☐1 Yes
☐2 No

6. How helpful was the facilitator during the times you interacted?

Not at all helpful				Extremely helpful	Never interacted
☐1	☐2	☐3	☐4	☐5	☐-4

7. Did the facilitator's work increase the value of the courses and materials?

☐1 Yes, quite a bit
☐2 Yes, somewhat
☐3 No, the materials and courses would have been just as valuable without the facilitator's input

8-1. For questions 8 and 8A – can you summarize what this question is asking for?

8-2. Is the skip pattern clear here? What question would you answer next if you felt the facilitator had reinforced existing divisions and hierarchy at your school? What about if you thought the facilitator had no effect on cooperation?

8-3. Are there other dimensions about the role or effect of the facilitator we have not asked about that you think we should be asking about?

8. What effect did the facilitator's work have on cooperation among math teachers at your school?

- ☐1 Created a new collegial atmosphere
- ☐2 Boosted the existing "team spirit"
- ☐3 Reinforced existing divisions or hierarchy
- ☐4 Created new divisiveness or hierarchy
- ☐5 Had no effect

8A. Has that effect persisted until now?

- ☐1 Yes
- ☐2 No
- ☐3 Not applicable – you are not at that school any more

Now are some questions about the algebra courses that were part of the program.

Q9-1. Any problems with question 9? (For Year 1 ask – can you remember which instructor is which?)

9. Please rate the algebra course instructor.

Poor				Excellent
☐1	☐2	☐3	☐4	☐5

Q10-1. Can you scan through question 10 and tell me if you think you could answer these questions?

Q10-2. Are we missing any aspects of the algebra courses you think we should be rating?

10. How much do you think the algebra courses …

	Not at all	A little	Moderately	Very much
A. Helped you learn your subject matter better?	☐1	☐2	☐3	☐4
B. Provided you with teaching strategies?	☐1	☐2	☐3	☐4
C. Linked you to a support group of teachers?	☐1	☐2	☐3	☐4
D. Provided useful teaching resources?	☐1	☐2	☐3	☐4

Q11-1. Do you think teachers will answer Q11 honestly? (Why not?)

Q11-2. Are these good indicators of effort or is there a better question we could ask?

11. Please rate your level of effort in the courses. Your honest response helps us learn what realistic expectations might be for a program designed for full-time teachers.

	None	Some	Half	Most	All
A. How much assigned homework did you do?	☐1	☐2	☐3	☐4	☐5
B. How much homework did you turn in on time?	☐1	☐2	☐3	☐4	☐5
C. How many class sessions did you miss	☐1	☐2	☐3	☐4	☐5

Q12-1. Can you look through 12A and tell me if you think any reasons are missing?

12. How many of the three algebra courses did you complete?

- ☐1 One
- ☐2 Two
- ☐3 Three

Q12A. Please rate each of the following as reasons you did *not* complete all three courses

	Main reason	One of several reasons	Not a reason
Too much work expected	☐1	☐2	☐3
Too big a time commitment	☐1	☐2	☐3
Travel/logistical problems	☐1	☐2	☐3
Material not relevant to teaching	☐1	☐2	☐3
Friends dropped out	☐1	☐2	☐3
Did not match my learning style	☐1	☐2	☐3
Level of instruction too difficult	☐1	☐2	☐3
Personal life complications	☐1	☐2	☐3
Other, specify _____	☐1	☐2	☐3

Q13-1. Any problem with Q13?

13. The program also included a course on assessment. Please rate the instructor for the assessment course.

Poor				Excellent
☐1	☐2	☐3	☐4	☐5

Q14-1. Can you scan through Q14 and tell me if you think these are relevant dimensions for the assessment course?

Q14-2. Could you easily answer these? (Why not?)

14. How much do you think the assessment course …

	Not at all	A little	Moderately	Very much
A. provided you with useful classroom strategies?	☐1	☐2	☐3	☐4
B. linked you to a support group of teachers?	☐1	☐2	☐3	☐4
C. increased your teaching effectiveness?	☐1	☐2	☐3	☐4

Q15-1. Can you describe the task we are presenting in question 15? Is this a reasonable task? (Why not?)

Q15-2 Could you easily answer this question? (Why not?)

Finally, we have some questions that ask you to assess the program overall.

15. Please rate the *relative* value of the various aspects of the program below

	Least Valuable				**Most Valuable**
A. Formative evaluation guides	☐1	☐2	☐3	☐4	☐5
B. Teaching guides	☐1	☐2	☐3	☐4	☐5
C. Student activity guides for problem-solving and writing about math	☐1	☐2	☐3	☐4	☐5
D. Project facilitator visits	☐1	☐2	☐3	☐4	☐5
E. Graduate courses in algebra (3 courses)	☐1	☐2	☐3	☐4	☐5
F. Graduate course in assessment (1 course)	☐1	☐2	☐3	☐4	☐5

Q16-1. Question 16 takes some time to read. Could you please take a few minutes to read through the items and tell me if there are any you find confusing or would not be able to answer easily.

16. To the best of your ability, please indicate whether the program prompted you to use the following teaching techniques *more* or *less* often or whether the program had no effect on your use of these techniques.

Due to the program, do you use the following …	**A lot less**	**A little less**	**The same (no effect)**	**A little more**	**A lot more**
A. Peer interaction teaching methods (peer tutors, peer coaching, pair students, study groups, group projects, etc.)	☐1	☐2	☐3	☐4	☐5
B. Student-initiated cognitive and meta-cognitive techniques (math journals, write out steps, draw pictures/diagrams of problem-solving process, students create own problems, etc.)	☐1	☐2	☐3	☐4	☐5
C. Practice (students apply new skills to a variety of problems)	☐1	☐2	☐3	☐4	☐5
D. Teacher-interactive instruction (one-on-one teaching, model problems for students, small group instruction)	☐1	☐2	☐3	☐4	☐5
E. Teaching to multiple learning styles (manipulatives, models, visuals, technology)	☐1	☐2	☐3	☐4	☐5
F. Reframing techniques (break problem into smaller parts, fewer or simpler problems, re-state problem, re-teach lesson with different approach)	☐1	☐2	☐3	☐4	☐5
G. Applications and practical examples (real world applications, relate math to student's lives, story problems, projects)	☐1	☐2	☐3	☐4	☐5
H. Affective Domain (positive reinforcement, verbal encouragement and patience)	☐1	☐2	☐3	☐4	☐5
I. Assessment (use oral as well as written exams, re-testing, look for error patterns)	☐1	☐2	☐3	☐4	☐5
J. Teacher instruction of cognition (math path, flow charts, teach students to "undo" problems, etc.)	☐1	☐2	☐3	☐4	☐5

Q17-1. Questions 17 and 18 are open-ended and ask you to write text for answers. Do you think you would write anything here? (Why not?)

Q17-2. Do you think having these questions after the fixed-choice ratings helped you to think about the impact of the program or do you think you would have had more to say if these questions came first?

17. What are the most important things the program did for you?

18. How, if at all, is the program continuing to have an impact on your teaching today?

Q-19-1. Could you easily answer Q19? (Why not?)

19. Would you encourage or discourage other teachers from taking part in similar programs?

☐1 Encourage
☐2 Discourage

Q20-1. Can you scan through the reasons in question's 20A and tell me if you think any reasons are poorly stated? Are any missing?

Q20-2. What about 20B?

20. If you had it to do over again, would you still enroll?

☐1 Yes →

Q20A. Please rate the following as reasons you *would* do it again.

	Main reason	One of several reasons	Not a reason
A group-building, bonding experience	☐1	☐2	☐3
Practical value in the classroom	☐1	☐2	☐3
Credential for advancement	☐1	☐2	☐3
Increased own knowledge, skill	☐1	☐2	☐3
Other, please specify _____			

☐2 No →

Q20B. Please rate the following as reasons you would *not* do it again.

	Main reason	One of several reasons	Not a reason
Too much work in general	☐1	☐2	☐3
Too stressful while working	☐1	☐2	☐3
Not helpful for teaching	☐1	☐2	☐3
Not challenging enough	☐1	☐2	☐3
Other, please specify: _____			

Thank you very much for your time. We depend on people such as you to help us develop better questionnaires. I would like to send you a check for $25 as a more tangible thank you for helping us. I need to get the correct spelling of your name and an address to which to send it:

NAME _____

ADDRESS _____

_____

_____

We will be sending you the final questionnaire after we make any modifications based on our pre-testing. We hope that you will still fill it out and return it – a high response rate is very important to the quality of this evaluation effort. Thank you again for your time and have a nice weekend.

Appendix B Initial Recruitment Letter

THE UNIVERSITY OF CHICAGO
SURVEY LAB

6030 South Ellis Avenue
Chicago, Illinois 60637
Tel 773- 834-3843 fax 773-834-7412

DATE

Dear TEACHER'S NAME,

You are receiving this questionnaire because you were enrolled in a tuition-paid professional development program that provided teaching resources, a visiting program coordinator to facilitate with the use of these resources, and four graduate-level courses relevant to math teachers: three in algebra and one in formative evaluation.

We are asking for your help in evaluating that program. The University of Chicago Survey Lab has been engaged to conduct a survey about whether and how the training you received as part of the program affected your teaching at the time and/or continues to affect your teaching now. The survey only takes about **10 minutes** to complete. **Your responses are confidential**. We will not link your name to any of your responses. Results will only be presented in summary form.

Although your participation in this survey is voluntary, it is very important to the evaluation that we hear from everyone who enrolled, even if you did not remain in the program until the end. In consideration of your time, we will **send a check for $15 as a token of our thanks to all those who help** with the evaluation by completing a questionnaire.

We appreciate your time and help!

Sincerely,

Martha Van Haitsma, Ph.D.
Co-Director
University of Chicago Survey Lab
773-834-3674
mvh@uchicago.edu

Your rights as a participant in this evaluation research are protected by the University of Chicago's Institutional Review Board (IRB). If you have questions about your rights or or complaints about the way the study is being conducted, please contact Brian Schwegler at baschweg@uchicago.edu or (773) 702-5064 and refer to protocol H07059.

Professional Development Program Evaluation Survey

First are some questions about your enrollment in the program.

1. Please rate each of the following as a reason you enrolled in the program

	1-3 Main reasons	Secondary reasons	Not reasons
A. You liked the idea of being in a program with colleagues from your school	□1	□2	□3
B. To improve your math knowledge	□1	□2	□3
C. To meet teachers from other schools	□1	□2	□3
D. Other teachers at your school who were enrolling urged you to join them	□1	□2	□3
E. Your principal urged you to enroll	□1	□2	□3
F. Free tuition	□1	□2	□3
G. For your long-term career progress	□1	□2	□3
H. For immediate application to teaching work	□1	□2	□3
I. For math endorsement credit	□1	□2	□3
J. Other, please specify _____	□1	□2	□3

2. All teachers initially enrolled with others from their school. Which of the following was true for you?

□1 You still had colleagues from your school during the entire program

□2 All others dropped out leaving you as the *only* teacher from your school in the program

3. Are any of the teachers with whom you first enrolled still at your current school?

□1 Yes

□2 No

4. As part of the program, you received guides to organize analysis of student math status such as the "math path" and ISAT Problem Solver guides, and charts to use to plan your instructional priorities. Please rate these materials below.

	Not at all			Very
A. Was it easy to use the guides?	□1	□2	□3	□4
B. Did you find the use of the guides helpful at the time?	□1	□2	□3	□4
C. Do you still find the materials helpful?	□1	□2	□3	□4

As part of the program, a project facilitator made visits to each school to assist teachers with using the program resources. The following questions ask for your evaluation of this aspect of the program.

5. Did you get as much of the facilitator's time as you needed?

- ☐1 Yes
- ☐2 No

6. How helpful was the facilitator during the times you interacted?

Not at all helpful				Extremely helpful	Never interacted
☐1	☐2	☐3	☐4	☐5	☐-4

7. Did the facilitator's work increase the value of the courses and materials?

- ☐1 Yes, quite a bit
- ☐2 Yes, somewhat
- ☐3 No, the materials and courses would have been just as valuable without the facilitator's input

8. What effect did the facilitator's work have on cooperation among math teachers at your school?

- ☐1 Created a new spirit of cooperation
- ☐2 Boosted the existing "team spirit"
- ☐3 Reinforced existing divisions or hierarchy
- ☐4 Created new divisiveness or hierarchy
- ☐5 Had no effect

8A. Has that effect persisted until now?

- ☐1 Yes
- ☐2 No
- ☐3 Not applicable – you are not at that school any more

Now are some questions about the algebra courses that were part of the program.

9A. Please rate the algebra course instructor Ms. Narasimhan

Poor				Excellent
☐1	☐2	☐3	☐4	☐5

9B. Please rate the algebra course instructor Mr. Lynn

Poor				Excellent
☐1	☐2	☐3	☐4	☐5

10. How much do you think the algebra courses …

	Not at all	A little	Moderately	Very much
A. Helped you learn your subject matter better?	☐1	☐2	☐3	☐4
B. Provided you with teaching strategies?	☐1	☐2	☐3	☐4
C. Linked you to a support group of teachers?	☐1	☐2	☐3	☐4
D. Provided useful teaching resources?	☐1	☐2	☐3	☐4

11. Please rate your level of effort in the courses. Your honest response will help us develop realistic expectations for this type of program.

	None	Some	Half	Most	All
A. How much assigned homework did you do?	☐1	☐2	☐3	☐4	☐5
B. How much homework did you turn in on time?	☐1	☐2	☐3	☐4	☐5
C. How many class sessions did you miss?	☐1	☐2	☐3	☐4	☐5

The program also included a course on assessment.

13. Please rate the instructor for the assessment course.

Poor				Excellent
☐1	☐2	☐3	☐4	☐5

14. How much do you think the assessment course …

	Not at all	A little	Moderately	Very much
A. Provided you with useful classroom strategies?	☐1	☐2	☐3	☐4
B. Linked you to a support group of teachers?	☐1	☐2	☐3	☐4
C. Increased your teaching effectiveness?	☐1	☐2	☐3	☐4

Finally, we have some questions that ask you to assess the program overall.

15. Please rate the value of the various aspects of the program below.

	Least Valuable				Most Valuable
A. Formative evaluation guides	☐1	☐2	☐3	☐4	☐5
B. Teaching guides	☐1	☐2	☐3	☐4	☐5
C. Student activity guides for problem-solving and writing about math	☐1	☐2	☐3	☐4	☐5
D. Project facilitator visits	☐1	☐2	☐3	☐4	☐5
E. Graduate courses in algebra (3 courses)	☐1	☐2	☐3	☐4	☐5

F. Graduate course in assessment (1 course) ☐1 ☐2 ☐3 ☐4 ☐5

16. To the best of your ability, please indicate whether the program prompted you to use the following teaching techniques *more* or *less* often or whether the program had no effect on your use of these techniques.

Due to the program, do you use the following …	**A lot less**	**A little less**	**The same (no effect)**	**A little more**	**A lot more**
A. Peer interaction teaching methods (peer tutors, peer coaching, pair students, study groups, group projects, etc.)	☐1	☐2	☐3	☐4	☐5
B. Student-initiated cognitive and meta-cognitive techniques (math journals, write out steps, draw pictures/diagrams of problem-solving process, students create own problems, etc.)	☐1	☐2	☐3	☐4	☐5
C. Practice (students apply new skills to a variety of problems)	☐1	☐2	☐3	☐4	☐5
D. Teacher-interactive instruction (one-on-one teaching, model problems for students, small group instruction)	☐1	☐2	☐3	☐4	☐5
E. Teaching to multiple learning styles (manipulatives, models, visuals, technology)	☐1	☐2	☐3	☐4	☐5
F. Reframing techniques (break problem into smaller parts, fewer or simpler problems, re-state problem, re-teach lesson with different approach)	☐1	☐2	☐3	☐4	☐5
G. Applications and practical examples (real world applications, relate math to student's lives, story problems, projects)	☐1	☐2	☐3	☐4	☐5
H. Affective Domain (positive reinforcement, verbal encouragement and patience)	☐1	☐2	☐3	☐4	☐5
I. Assessment (use oral as well as written exams, re-testing, look for error patterns)	☐1	☐2	☐3	☐4	☐5
J. Teacher instruction of cognition (math path, flow charts, teach students to "undo" problems, etc.)	☐1	☐2	☐3	☐4	☐5

17. What are the most important things the program did for you?

18. How, if at all, is the program continuing to have an impact on your teaching today?

19. Would you encourage or discourage other teachers from taking part in similar programs?

□1 Encourage
□2 Discourage

20. If you had it to do over again, would you still enroll?

□1 Yes →

Q20A. Please rate the following as reasons you *would* do it again.

	1-3 Main reasons	Secondary reasons	Not reasons
A group-building, bonding experience with teachers inside your school	□1	□2	□3
A chance to communicate and share ideas with teachers outside your school	□1	□2	□3
Practical value in the classroom	□1	□2	□3
Credential for advancement	□1	□2	□3
Increased own knowledge, skill	□1	□2	□3

Other, please specify:
_____

□2 No →

Q20B. Please rate the following as reasons you would *not* do it again.

	1-3 Main reasons	Secondary reasons	Not reasons
Doesn't fit in with school schedule	□1	□2	□3
Too much work in general	□1	□2	□3
Too stressful while working	□1	□2	□3
Not helpful for teaching	□1	□2	□3
Not challenging enough	□1	□2	□3

Other, please specify:
_____

21. Is there anything else you wanted to say about the program?

THANK YOU for your assistance!
Your cooperation helps us to evaluate and improve programs like these.

Please return the survey in postage paid envelope provided.

Professional Development Program Evaluation Survey

First are some questions about your enrollment in the program.

1. Please rate each of the following as a reason you enrolled in the program

	1-3 Main reasons	Secondary reasons	Not reasons
A. You liked the idea of being in a program with colleagues from your school	□1	□2	□3
B. To improve your math knowledge	□1	□2	□3
C. To meet teachers from other schools	□1	□2	□3
D. Other teachers at your school who were enrolling urged you to join them	□1	□2	□3
E. Your principal urged you to enroll	□1	□2	□3
F. Free tuition	□1	□2	□3
G. For your long-term career progress	□1	□2	□3
H. For immediate application to teaching work	□1	□2	□3
I. For math endorsement credit	□1	□2	□3
J. Other, please specify _____	□1	□2	□3

2. All teachers initially enrolled with others from their school. Which of the following was true for you?

□1 You enrolled in the program with others from your school and continued to have colleagues enrolled throughout the time you stayed in the program

□2 You enrolled in the program with others from your school, but all others dropped out leaving you as the *only* teacher from your school in the program

3. Are any of the teachers with whom you first enrolled still at your current school?

□1 Yes
□2 No

4. As part of the program, you received guides to organize analysis of student math status such as the "math path" and ISAT Problem Solver guides, and charts to use to plan your instructional priorities. Please rate these materials below.

	Not at all			Very
A. Was it easy to use the guides?	□1	□2	□3	□4
B. Did you find the use of the guides helpful at the time?	□1	□2	□3	□4
C. Do you still find the materials helpful?	□1	□2	□3	□4

As part of the program, a project facilitator made visits to each school to assist teachers with using the program resources. The following questions ask for your evaluation of this aspect of the program.

5. Did you get as much of the facilitator's time as you needed?

- ☐1 Yes
- ☐2 No

6. How helpful was the facilitator during the times you interacted?

Not at all helpful				Extremely helpful	Never interacted
☐1	☐2	☐3	☐4	☐5	☐-4

7. Did the facilitator's work increase the value of the courses and materials?

- ☐1 Yes, quite a bit
- ☐2 Yes, somewhat
- ☐3 No, the materials and courses would have been just as valuable without the facilitator's input

8. What effect did the facilitator's work have on cooperation among math teachers at your school?

- ☐1 Created a new spirit of cooperation
- ☐2 Boosted the existing "team spirit"
- ☐3 Reinforced existing divisions or hierarchy
- ☐4 Created new divisiveness or hierarchy
- ☐5 Had no effect

8A. Has that effect persisted until now?

- ☐1 Yes
- ☐2 No
- ☐3 Not applicable – you are not at that school any more

Now are some questions about the algebra courses that were part of the program.

9A. Please rate the algebra course instructor Ms. Narasimhan

Poor				Excellent
☐1	☐2	☐3	☐4	☐5

9B. Please rate the algebra course instructor Mr. Lynn

Poor				Excellent
☐1	☐2	☐3	☐4	☐5

10. How much do you think the algebra courses …

	Not at all	A little	Moderately	Very much
A. Helped you learn your subject matter better?	☐1	☐2	☐3	☐4
B. Provided you with teaching strategies?	☐1	☐2	☐3	☐4
C. Linked you to a support group of teachers?	☐1	☐2	☐3	☐4
D. Provided useful teaching resources?	☐1	☐2	☐3	☐4

11. Please rate your level of effort in the courses. Your honest response will help us develop realistic expectations for this type of program.

	None	Some	Half	Most	All
A. How much assigned homework did you do?	☐1	☐2	☐3	☐4	☐5
B. How much homework did you turn in on time?	☐1	☐2	☐3	☐4	☐5
C. How many class sessions did you <u>miss</u>?	☐1	☐2	☐3	☐4	☐5

12. How many of the three algebra courses did you complete?

☐1 One
☐2 Two
☐3 Three

Q12A. Please rate each of the following as reasons you did *not* complete all three courses

	1-3 Main reasons	Secondary reasons	<u>Not</u> reasons
Too much work expected	☐1	☐2	☐3
Too big a time commitment	☐1	☐2	☐3
Travel/logistical problems	☐1	☐2	☐3
Material not relevant to teaching	☐1	☐2	☐3
Friends dropped out	☐1	☐2	☐3
Did not match my learning style	☐1	☐2	☐3
Level of instruction too difficult	☐1	☐2	☐3
Personal life complications	☐1	☐2	☐3
Other, specify _____	☐1	☐2	☐3

13. The program also included a course on assessment. Please rate the instructor for the assessment course.

Poor				Excellent
☐1	☐2	☐3	☐4	☐5

14. How much do you think the assessment course …

	Not at all	A little	Moderately	Very much
A. provided you with useful classroom strategies?	☐1	☐2	☐3	☐4
B. linked you to a support group of teachers?	☐1	☐2	☐3	☐4
C. increased your teaching effectiveness?	☐1	☐2	☐3	☐4

Finally, we have some questions that ask you to assess the program overall.

15. Please rate the value of the various aspects of the program below

	Least Valuable				Most Valuable
A. Formative evaluation guides	☐1	☐2	☐3	☐4	☐5
B. Teaching guides	☐1	☐2	☐3	☐4	☐5
C. Student activity guides for problem-solving and writing about math	☐1	☐2	☐3	☐4	☐5
D. Project facilitator visits	☐1	☐2	☐3	☐4	☐5
E. Graduate courses in algebra (3 courses)	☐1	☐2	☐3	☐4	☐5
F. Graduate course in assessment (1 course)	☐1	☐2	☐3	☐4	☐5

16. To the best of your ability, please indicate whether the program prompted you to use the following teaching techniques *more* or *less* often or whether the program had no effect on your use of these techniques.

Due to the program, do you use the following …	A lot less	A little less	The same (no effect)	A little more	A lot more
A. Peer interaction teaching methods (peer tutors, peer coaching, pair students, study groups, group projects, etc.)	☐1	☐2	☐3	☐4	☐5
B. Student-initiated cognitive and meta-cognitive techniques (math journals, write out steps, draw pictures/diagrams of problem-solving process, students create own problems, etc.)	☐1	☐2	☐3	☐4	☐5
C. Practice (students apply new skills to a variety of problems)	☐1	☐2	☐3	☐4	☐5
D. Teacher-interactive instruction (one-on-one teaching, model problems for students, small group instruction)	☐1	☐2	☐3	☐4	☐5
E. Teaching to multiple learning styles (manipulatives, models, visuals, technology)	☐1	☐2	☐3	☐4	☐5
F. Reframing techniques (break problem into smaller parts, fewer or simpler problems, re-state problem, re-teach lesson with different approach)	☐1	☐2	☐3	☐4	☐5
G. Applications and practical examples (real world applications, relate math to student's lives, story problems, projects)	☐1	☐2	☐3	☐4	☐5
H. Affective Domain (positive reinforcement, verbal encouragement and patience)	☐1	☐2	☐3	☐4	☐5
I. Assessment (use oral as well as written exams, re-testing, look for error patterns)	☐1	☐2	☐3	☐4	☐5
J. Teacher instruction of cognition (math path, flow charts, teach students to "undo" problems, etc.)	☐1	☐2	☐3	☐4	☐5

17. What are the most important things the program did for you?

18. How, if at all, is the program continuing to have an impact on your teaching today?

19. Would you encourage or discourage other teachers from taking part in similar programs?

□1 Encourage
□2 Discourage

20. If you had it to do over again, would you still enroll?

□1 Yes →

Q20A. Please rate the following as reasons you *would* do it again.

	1-3 Main reasons	Secondary reasons	Not reasons
A group-building, bonding experience with teachers inside your school	□1	□2	□3
A chance to communicate and share ideas with teachers outside your school	□1	□2	□3
Practical value in the classroom	□1	□2	□3
Credential for advancement	□1	□2	□3
Increased own knowledge, skill	□1	□2	□3

Other, please specify
_____

□2 No →

Q20B. Please rate the following as reasons you would *not* do it again.

	1-3 Main reasons	Secondary reasons	Not reasons
Doesn't fit in with school schedule	□1	□2	□3
Too much work in general	□1	□2	□3
Too stressful while working	□1	□2	□3
Not helpful for teaching	□1	□2	□3
Not challenging enough	□1	□2	□3

Other, please specify:
_____

21. Is there anything else you wanted to say about the program?

THANK YOU for your assistance!
Your cooperation helps us to evaluate and improve programs like these.

Please return the survey in postage paid envelope provided.

Appendix D – Questionnaire for Early Leavers in Year 1
Prepared by the University of Chicago Survey Lab

PRINT FORM V-3-1-3001

Professional Development Program Evaluation Survey

First are some questions about your enrollment in the program.

1. Please rate each of the following as a reason you enrolled in the program

	1-3 Main reasons	**Secondary reasons**	**Not reasons**
A. You liked the idea of being in a program with colleagues from your school	□1	□2	□3
B. To improve your math knowledge	□1	□2	□3
C. To meet teachers from other schools	□1	□2	□3
D. Other teachers at your school who were enrolling urged you to join them	□1	□2	□3
E. Your principal urged you to enroll	□1	□2	□3
F. Free tuition	□1	□2	□3
G. For your long-term career progress	□1	□2	□3
H. For immediate application to teaching work	□1	□2	□3
I. For math endorsement credit	□1	□2	□3
J. Other, please specify _____	□1	□2	□3

2. All teachers initially enrolled with others from their school. Which of the following was true for you?

□1 You still had colleagues from your school during the entire program

□2 All others dropped out leaving you as the *only* teacher from your school in the program

3. Are any of the teachers with whom you first enrolled still at your current school?

□1 Yes

□2 No

4. As part of the program, you received guides to organize analysis of student math status such as the "math path" and ISAT Problem Solver guides, and charts to use to plan your instructional priorities. Please rate these materials below.

	Not at all			**Very**
A. Was it easy to use the guides?	□1	□2	□3	□4
B. Did you find the use of the guides helpful at the time?	□1	□2	□3	□4
C. Do you still find the materials helpful?	□1	□2	□3	□4

As part of the program, a project facilitator made visits to each school to assist teachers with using the program resources. The following questions ask for your evaluation of this aspect of the program.

5. Did you get as much of the facilitator's time as you needed?

- ☐1 Yes
- ☐2 No

6. How helpful was the facilitator during the times you interacted?

Not at all helpful				Extremely helpful	Never interacted
☐1	☐2	☐3	☐4	☐5	☐-4

7. Did the facilitator's work increase the value of the courses and materials?

- ☐1 Yes, quite a bit
- ☐2 Yes, somewhat
- ☐3 No, the materials and courses would have been just as valuable without the facilitator's input

8. What effect did the facilitator's work have on cooperation among math teachers at your school?

- ☐1 Created a new spirit of cooperation
- ☐2 Boosted the existing "team spirit"
- ☐3 Reinforced existing divisions or hierarchy
- ☐4 Created new divisiveness or hierarchy
- ☐5 Had no effect

8A. Has that effect persisted until now?

- ☐1 Yes
- ☐2 No
- ☐3 Not applicable – you are not at that school any more

Now are some questions about the algebra courses that were part of the program.

9. Please rate the algebra course instructor.

Poor				Excellent
☐1	☐2	☐3	☐4	☐5

10. How much do you think the algebra courses …

	Not at all	A little	Moderately	Very much
A. Helped you learn your subject matter better?	☐1	☐2	☐3	☐4
B. Provided you with teaching strategies?	☐1	☐2	☐3	☐4
C. Linked you to a support group of teachers?	☐1	☐2	☐3	☐4
D. Provided useful teaching resources?	☐1	☐2	☐3	☐4

11. Please rate your level of effort in the courses. Your honest response will help us develop realistic expectations for this type of program.

	None	Some	Half	Most	All
A. How much assigned homework did you do?	☐1	☐2	☐3	☐4	☐5
B. How much homework did you turn in on time?	☐1	☐2	☐3	☐4	☐5
C. How many class sessions did you miss?	☐1	☐2	☐3	☐4	☐5

The program also included a course on assessment.

13. Please rate the instructor for the assessment course.

Poor				Excellent
☐1	☐2	☐3	☐4	☐5

14. How much do you think the assessment course …

	Not at all	A little	Moderately	Very much
A. Provided you with useful classroom strategies?	☐1	☐2	☐3	☐4
B. Linked you to a support group of teachers?	☐1	☐2	☐3	☐4
C. Increased your teaching effectiveness?	☐1	☐2	☐3	☐4

Finally, we have some questions that ask you to assess the program overall.

15. Please rate the value of the various aspects of the program below.

	Least Valuable				Most Valuable
A. Formative evaluation guides	☐1	☐2	☐3	☐4	☐5
B. Teaching guides	☐1	☐2	☐3	☐4	☐5
C. Student activity guides for problem-solving and writing about math	☐1	☐2	☐3	☐4	☐5
D. Project facilitator visits	☐1	☐2	☐3	☐4	☐5
E. Graduate courses in algebra (3 courses)	☐1	☐2	☐3	☐4	☐5
F. Graduate course in assessment (1 course)	☐1	☐2	☐3	☐4	☐5

16. To the best of your ability, please indicate whether the program prompted you to use the following teaching techniques *more* or *less* often or whether the program had no effect on your use of these techniques.

Due to the program, do you use the following …	**A lot less**	**A little less**	**The same (no effect)**	**A little more**	**A lot more**
A. Peer interaction teaching methods (peer tutors, peer coaching, pair students, study groups, group projects, etc.)	☐1	☐2	☐3	☐4	☐5
B. Student-initiated cognitive and meta-cognitive techniques (math journals, write out steps, draw pictures/diagrams of problem-solving process, students create own problems, etc.)	☐1	☐2	☐3	☐4	☐5
C. Practice (students apply new skills to a variety of problems)	☐1	☐2	☐3	☐4	☐5
D. Teacher-interactive instruction (one-on-one teaching, model problems for students, small group instruction)	☐1	☐2	☐3	☐4	☐5
E. Teaching to multiple learning styles (manipulatives, models, visuals, technology)	☐1	☐2	☐3	☐4	☐5
F. Reframing techniques (break problem into smaller parts, fewer or simpler problems, re-state problem, re-teach lesson with different approach)	☐1	☐2	☐3	☐4	☐5
G. Applications and practical examples (real world applications, relate math to student's lives, story problems, projects)	☐1	☐2	☐3	☐4	☐5
H. Affective Domain (positive reinforcement, verbal encouragement and patience)	☐1	☐2	☐3	☐4	☐5
I. Assessment (use oral as well as written exams, re-testing, look for error patterns)	☐1	☐2	☐3	☐4	☐5
J. Teacher instruction of cognition (math path, flow charts, teach students to "undo" problems, etc.)	☐1	☐2	☐3	☐4	☐5

17. What are the most important things the program did for you?

18. How, if at all, is the program continuing to have an impact on your teaching today?

19. Would you encourage or discourage other teachers from taking part in similar programs?

□1 Encourage
□2 Discourage

20. If you had it to do over again, would you still enroll?

□1 Yes →

Q20A. Please rate the following as reasons you *would* do it again.

	1-3 Main reasons	Secondary reasons	Not reasons
A group-building, bonding experience with teachers inside your school	□1	□2	□3
A chance to communicate and share ideas with teachers outside your school	□1	□2	□3
Practical value in the classroom	□1	□2	□3
Credential for advancement	□1	□2	□3
Increased own knowledge, skill	□1	□2	□3

Other, please specify:
_____

□2 No →

Q20B. Please rate the following as reasons you would *not* do it again.

	1-3 Main reasons	Secondary reasons	Not reasons
Doesn't fit in with school schedule	□1	□2	□3
Too much work in general	□1	□2	□3
Too stressful while working	□1	□2	□3
Not helpful for teaching	□1	□2	□3
Not challenging enough	□1	□2	□3

Other, please specify:
_____

21. Is there anything else you wanted to say about the program?

THANK YOU for your assistance!
Your cooperation helps us to evaluate and improve programs like these.

Please return the survey in postage paid envelope provided.

Professional Development Program Evaluation Survey

First are some questions about your enrollment in the program.

1. Please rate each of the following as a reason you enrolled in the program

	1-3 Main reasons	Secondary reasons	Not a reason
A. You liked the idea of being in a program with colleagues from your school	□1	□2	□3
B. To improve your math knowledge	□1	□2	□3
C. To meet teachers from other schools	□1	□2	□3
D. Other teachers at your school who were enrolling urged you to join them	□1	□2	□3
E. Your principal urged you to enroll	□1	□2	□3
F. Free tuition	□1	□2	□3
G. For your long-term career progress	□1	□2	□3
H. For immediate application to teaching work	□1	□2	□3
I. For math endorsement credit	□1	□2	□3
J. Other, please specify _____	□1	□2	□3

2. All teachers initially enrolled with others from their school. Which of the following was true for you?

□1 You still had colleagues from your school during the entire program

□2 All others dropped out leaving you as the *only* teacher from your school in the program

3. Are any of the teachers with whom you first enrolled still at your current school?

□1 Yes
□2 No

4. As part of the program, you received guides to organize analysis of student math status such as the "math path" and ISAT Problem Solver guides, and charts to use to plan your instructional priorities. Please rate these materials below.

	Not at all			Very
A. Was it easy to use the guides?	□1	□2	□3	□4
B. Did you find the use of the guides helpful at the time?	□1	□2	□3	□4
C. Do you still find the materials helpful?	□1	□2	□3	□4

As part of the program, a project facilitator made visits to each school to assist teachers with using the program resources. The following questions ask for your evaluation of this aspect of the program.

5. Did you get as much of the facilitator's time as you needed?

- ☐1 Yes
- ☐2 No

6. How helpful was the facilitator during the times you interacted?

Not at all helpful				Extremely helpful	Never interacted
☐1	☐2	☐3	☐4	☐5	☐-4

7. Did the facilitator's work increase the value of the courses and materials?

- ☐1 Yes, quite a bit
- ☐2 Yes, somewhat
- ☐3 No, the materials and courses would have been just as valuable without the facilitator's input

8. What effect did the facilitator's work have on cooperation among math teachers at your school?

- ☐1 Created a new spirit of cooperation
- ☐2 Boosted the existing "team spirit"
- ☐3 Reinforced existing divisions or hierarchy
- ☐4 Created new divisiveness or hierarchy
- ☐5 Had no effect

8A. Has that effect persisted until now?

- ☐1 Yes
- ☐2 No
- ☐3 Not applicable – you are not at that school any more

Now are some questions about the algebra courses that were part of the program.

9. Please rate the algebra course instructor.

Poor				Excellent
☐1	☐2	☐3	☐4	☐5

10. How much do you think the algebra courses …

	Not at all	A little	Moderately	Very much
A. Helped you learn your subject matter better?	☐1	☐2	☐3	☐4
B. Provided you with teaching strategies?	☐1	☐2	☐3	☐4
C. Linked you to a support group of teachers?	☐1	☐2	☐3	☐4
D. Provided useful teaching resources?	☐1	☐2	☐3	☐4

11. Please rate your level of effort in the courses. Your honest response will help us develop realistic expectations for this type of program.

	None	Some	Half	Most	All
A. How much assigned homework did you do?	☐1	☐2	☐3	☐4	☐5
B. How much homework did you turn in on time?	☐1	☐2	☐3	☐4	☐5
C. How many class sessions did you miss?	☐1	☐2	☐3	☐4	☐5

12. How many of the three algebra courses did you complete?

☐1 One
☐2 Two
☐3 Three

Q12A. Please rate each of the following as reasons you did *not* complete all three courses

	1-3 Main reasons	Secondary reasons	Not reasons
Too much work expected	☐1	☐2	☐3
Too big a time commitment	☐1	☐2	☐3
Travel/logistical problems	☐1	☐2	☐3
Material not relevant to teaching	☐1	☐2	☐3
Friends dropped out	☐1	☐2	☐3
Did not match my learning style	☐1	☐2	☐3
Level of instruction too difficult	☐1	☐2	☐3
Personal life complications	☐1	☐2	☐3
Other, specify _____	☐1	☐2	☐3

13. The program also included a course on assessment. Please rate the instructor for the assessment course.

Poor				Excellent
☐1	☐2	☐3	☐4	☐5

14. How much do you think the assessment course …

	Not at all	A little	Moderately	Very much
A. Provided you with useful classroom strategies?	☐1	☐2	☐3	☐4
B. Linked you to a support group of teachers?	☐1	☐2	☐3	☐4
C. Increased your teaching effectiveness?	☐1	☐2	☐3	☐4

Finally, we have some questions that ask you to assess the program overall.

15. Please rate the value of the various aspects of the program below

	Least Valuable				Most Valuable
A. Formative evaluation guides	☐1	☐2	☐3	☐4	☐5
B. Teaching guides	☐1	☐2	☐3	☐4	☐5
C. Student activity guides for problem-solving and writing about math	☐1	☐2	☐3	☐4	☐5
D. Project facilitator visits	☐1	☐2	☐3	☐4	☐5
E. Graduate courses in algebra (3 courses)	☐1	☐2	☐3	☐4	☐5
F. Graduate course in assessment (1 course)	☐1	☐2	☐3	☐4	☐5

16. To the best of your ability, please indicate whether the program prompted you to use the following teaching techniques *more* or *less* often or whether the program had no effect on your use of these techniques.

Due to the program, do you use the following …	**A lot less**	**A little less**	**The same (no effect)**	**A little more**	**A lot more**
A. Peer interaction teaching methods (peer tutors, peer coaching, pair students, study groups, group projects, etc.)	☐1	☐2	☐3	☐4	☐5
B. Student-initiated cognitive and meta-cognitive techniques (math journals, write out steps, draw pictures/diagrams of problem-solving process, students create own problems, etc.)	☐1	☐2	☐3	☐4	☐5
C. Practice (students apply new skills to a variety of problems)	☐1	☐2	☐3	☐4	☐5
D. Teacher-interactive instruction (one-on-one teaching, model problems for students, small group instruction)	☐1	☐2	☐3	☐4	☐5
E. Teaching to multiple learning styles (manipulatives, models, visuals, technology)	☐1	☐2	☐3	☐4	☐5
F. Reframing techniques (break problem into smaller parts, fewer or simpler problems, re-state problem, re-teach lesson with different approach)	☐1	☐2	☐3	☐4	☐5
G. Applications and practical examples (real world applications, relate math to student's lives, story problems, projects)	☐1	☐2	☐3	☐4	☐5
H. Affective Domain (positive reinforcement, verbal encouragement and patience)	☐1	☐2	☐3	☐4	☐5
I. Assessment (use oral as well as written exams, re-testing, look for error patterns)	☐1	☐2	☐3	☐4	☐5
J. Teacher instruction of cognition (math path, flow charts, teach students to "undo" problems, etc.)	☐1	☐2	☐3	☐4	☐5

17. What are the most important things the program did for you?

18. How, if at all, is the program continuing to have an impact on your teaching today?

19. Would you encourage or discourage other teachers from taking part in similar programs?

☐1 Encourage
☐2 Discourage

20. If you had it to do over again, would you still enroll?

☐1 Yes →

Q20A. Please rate the following as reasons you *would* do it again.

	1-3 Main reasons	Secondary reasons	Not a reason
A group-building, bonding experience with teachers inside your school	☐1	☐2	☐3
A chance to communicate and share ideas with teachers outside your school	☐1	☐2	☐3
Practical value in the classroom	☐1	☐2	☐3
Credential for advancement	☐1	☐2	☐3
Increased own knowledge, skill	☐1	☐2	☐3

Other, please specify:
_____

☐2 No →

Q20B. Please rate the following as reasons you would *not* do it again.

	1-3 Main reasons	Secondary reasons	Not a reason
Doesn't fit in with school schedule	☐1	☐2	☐3
Too much work in general	☐1	☐2	☐3
Too stressful while working	☐1	☐2	☐3
Not helpful for teaching	☐1	☐2	☐3
Not challenging enough	☐1	☐2	☐3

Other, please specify:
_____

21. Is there anything else you wanted to say about the program?

THANK YOU for your assistance!
Your cooperation helps us to evaluate and improve programs like these.

Please return the survey in postage paid envelope provided.

Appendix F – Questionnaire for Early Leavers in Year 2
Prepared by the University of Chicago Survey Lab

PRINT FORM V-3-1-0000

Interview Guide for teachers who dropped out of the program prior to the end of the first course

Before we begin the interview I want to remind you that your participation is voluntary, that you may refuse to answer any question, and that you may end the interview at any time. The purpose of the interview is to understand why you first enrolled in the math program and why you left it. What you tell us remains confidential. Results will be reported in summary form and not connected with your identity. Before we begin, do you have any questions?

So, the program began in the late summer of 200X – where were you teaching that year? What else was going on that year?

1. What do you remember <u>first</u> hearing about this program?
    - Who told you or where did you learn about it?
    - What did you hear about it?
    - What else was taking up your time then, in and out of school

2. Why did you decide to enroll initially?
    - How much time did you take to make the decision?
    - What sorts of things did you consider before enrolling?
    - Who, if anyone, did you consult with prior to enrolling?
    - Did you know about others who were enrolling? Others who were considering enrolling? Did you talk to any of them about it? What did you discuss?
    - How many teachers from your school eventually enrolled? Were any of these people who you had been friends with before the program began?

3. What did you hope to get out of the program at the time you enrolled?
    - What sorts of activities or program did you expect?
    - Was anything not what you were expecting? How so?
    - How did the initial activities of the program meet or fall short of your expectations?

4. Please describe everything you remember about what the program consisted of during the time you were part of it.
    - What events were there to attend? How many people were at these? What happened there? Did you enjoy these events? Did you learn anything from them? What was the schedule—what days and times?
    - Some materials were distributed as part of the program. Do you remember getting those? Can you describe them? Were they helpful? Why or why not?
    - There was a project coordinator who came to your school as part of the program to help you implement the various materials they provided you with. Did you ever meet with the coordinator individually? As part of a group? What did you think about this person's help?

- Can you tell me about the coursework? Was it easy or hard? Was it what you expected? How so? What was the instructor like? How many people were in the classes? Did you know any of them?

5. When and why did you leave the program?
   - Was there one key event or problem that was the reason you left or was it a cumulative result of many things? What were those reasons?
   - Did others you know also leave the program? Was your decision influenced in any way by whether or not others remained in the program? How so?
   - Is there anything that might have kept you in the program? What was that?

6. What, if anything, did you get out of the program during the time you were in it?
   - Did you ever use any of the materials from the program?
   - Do you still use any of the materials you got at the start of the program?

7. Have you enrolled in any other programs in the past or since leaving this one? How did those compare to this one?
   - Would you consider enrolling in a similar program in the future? Why or why not?
   - What do you think are reasonable expectations for such programs – what should they be trying to achieve?

8. Is there anything else you can tell me about this program and your decision to enroll in it or leave it?

We thank you very much for your time. Sometimes when we talk to people about things that happened some time ago, they continue to think about them and remember more details later. If you remember things you want to add or think might be helpful for evaluating this program, please call or send me email (GIVE CARD).

Appendix H – Survey Frequencies
Prepared by the University of Chicago Survey Lab

Frequency Tables

Which Cohort Year R Participated

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2004-2005	11	45.8	45.8	45.8
	2005-2006	13	54.2	54.2	100.0
	Total	24	100.0	100.0	

Version of questionnaire used

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Main Year 1	11	45.8	45.8	45.8
	Main Year 2	12	50.0	50.0	95.8
	Early Leavers Year 2	1	4.2	4.2	100.0
	Total	24	100.0	100.0	

You liked the idea of being in a program with colleagues from your school

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-3 Main reasons	15	62.5	62.5	62.5
	Secondary reasons	4	16.7	16.7	79.2
	Not reasons	5	20.8	20.8	100.0
	Total	24	100.0	100.0	

To improve your math knowledge

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-3 Main reasons	23	95.8	95.8	95.8
	Not reasons	1	4.2	4.2	100.0
	Total	24	100.0	100.0	

To meet teachers from other schools

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-3 Main reasons	4	16.7	16.7	16.7
	Secondary reasons	10	41.7	41.7	58.3
	Not reasons	10	41.7	41.7	100.0
	Total	24	100.0	100.0	

Appendix H – Survey Frequencies

Prepared by the University of Chicago Survey Lab

Other teachers at your school who were enrolling urged you to join them

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-3 Main reasons	5	20.8	20.8	20.8
	Secondary reasons	8	33.3	33.3	54.2
	Not reasons	11	45.8	45.8	100.0
	Total	24	100.0	100.0	

Your principal urged you to enroll

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-3 Main reasons	2	8.3	8.3	8.3
	Secondary reasons	7	29.2	29.2	37.5
	Not reasons	15	62.5	62.5	100.0
	Total	24	100.0	100.0	

Free tuition

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-3 Main reasons	14	58.3	58.3	58.3
	Secondary reasons	5	20.8	20.8	79.2
	Not reasons	5	20.8	20.8	100.0
	Total	24	100.0	100.0	

For your long-term career progress

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-3 Main reasons	18	75.0	75.0	75.0
	Secondary reasons	5	20.8	20.8	95.8
	Not reasons	1	4.2	4.2	100.0
	Total	24	100.0	100.0	

For immediate application to teaching work

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-3 Main reasons	15	62.5	65.2	65.2
	Secondary reasons	5	20.8	21.7	87.0
	Not reasons	3	12.5	13.0	100.0
	Total	23	95.8	100.0	
Missing	Missing	1	4.2		
Total		24	100.0		

Appendix H – Survey Frequencies

Prepared by the University of Chicago Survey Lab

For math endorsement credit

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-3 Main reasons	14	58.3	58.3	58.3
	Secondary reasons	4	16.7	16.7	75.0
	Not reasons	6	25.0	25.0	100.0
	Total	24	100.0	100.0	

Other

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-3 Main reasons	5	20.8	20.8	20.8
	Secondary reasons	1	4.2	4.2	25.0
	Not reasons	18	75.0	75.0	100.0
	Total	24	100.0	100.0	

Other (open end)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Algebra for 8th graders at my school was a goal	1	4.2	4.2	4.2
	general knowledge	1	4.2	4.2	8.3
	Left blank	3	12.5	12.5	20.8
	Not Applicable	18	75.0	75.0	95.8
	To learn innovative ways to help my students think mathematically	1	4.2	4.2	100.0
	Total	24	100.0	100.0	

All teachers initially enrolled with others from their school. Which of the following was true for you?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	You still had colleagues from your school during the entire program.	21	87.5	91.3	91.3
	All others dropped out leaving you as the only teacher from your school in the program.	2	8.3	8.7	100.0
	Total	23	95.8	100.0	
Missing	Missing	1	4.2		
Total		24	100.0		

Appendix H – Survey Frequencies

Prepared by the University of Chicago Survey Lab

Are any of the teachers with whom you first enrolled still at your current school?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	20	83.3	83.3	83.3
	No	4	16.7	16.7	100.0
	Total	24	100.0	100.0	

Was it easy to use the guides?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3	4	16.7	17.4	17.4
	4 Very	19	79.2	82.6	100.0
	Total	23	95.8	100.0	
Missing	Missing	1	4.2		
Total		24	100.0		

Did you find the use of the guides helpful at the time?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3	4	16.7	17.4	17.4
	4 Very	19	79.2	82.6	100.0
	Total	23	95.8	100.0	
Missing	Missing	1	4.2		
Total		24	100.0		

Do you still find the materials helpful?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	1	4.2	4.3	4.3
	3	4	16.7	17.4	21.7
	4 Very	18	75.0	78.3	100.0
	Total	23	95.8	100.0	
Missing	Missing	1	4.2		
Total		24	100.0		

Did you get as much of the facilitator's time as you needed?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	22	91.7	91.7	91.7
	No	2	8.3	8.3	100.0
	Total	24	100.0	100.0	

Appendix H – Survey Frequencies

Prepared by the University of Chicago Survey Lab

How helpful was the facilitator during the times you interacted?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Not at all helpful	1	4.2	4.3	4.3
	2	2	8.3	8.7	13.0
	3	2	8.3	8.7	21.7
	4	5	20.8	21.7	43.5
	5 Very helpful	13	54.2	56.5	100.0
	Total	23	95.8	100.0	
Missing	Not Apply	1	4.2		
Total		24	100.0		

Did the facilitator's work increase the value of the courses and materials?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes, quite a bit	12	50.0	50.0	50.0
	Yes, somewhat	8	33.3	33.3	83.3
	No, the materials and courses would have been just as valuable without the facilitator	4	16.7	16.7	100.0
	Total	24	100.0	100.0	

What effect did the facilitator's work have on cooperation among math teachers at your school?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Created a new spirit of cooperation	8	33.3	34.8	34.8
	Boosted the existing "team spirit"	8	33.3	34.8	69.6
	Reinforced existing divisions or hierarchy	2	8.3	8.7	78.3
	Had no effect	5	20.8	21.7	100.0
	Total	23	95.8	100.0	
Missing	See Notes	1	4.2		
Total		24	100.0		

Appendix H – Survey Frequencies

Prepared by the University of Chicago Survey Lab

Has this effect persisted until now?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	14	58.3	87.5	87.5
	No	2	8.3	12.5	100.0
	Total	16	66.7	100.0	
Missing	Not Apply - no longer at that school	3	12.5		
	Not Apply - had no effect	5	20.8		
	Total	8	33.3		
Total		24	100.0		

Please rate the algebra course instructor Lynn Narasimhan

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3	2	8.3	18.2	18.2
	4	4	16.7	36.4	54.5
	5 Excellent	5	20.8	45.5	100.0
	Total	11	45.8	100.0	
Missing	Not Apply	13	54.2		
Total		24	100.0		

Please rate the algebra course instructor James Lynn

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3	1	4.2	9.1	9.1
	4	1	4.2	9.1	18.2
	5 Excellent	9	37.5	81.8	100.0
	Total	11	45.8	100.0	
Missing	Not Apply	13	54.2		
Total		24	100.0		

Please rate the algebra course instructor

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	5 Excellent	13	54.2	100.0	100.0
Missing	Not Apply	11	45.8		
Total		24	100.0		

Appendix H – Survey Frequencies

Prepared by the University of Chicago Survey Lab

Helped you learn your subject matter better?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Moderately	6	25.0	25.0	25.0
	Very Much	18	75.0	75.0	100.0
	Total	24	100.0	100.0	

Provided you with teaching strategies?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Moderately	2	8.3	8.3	8.3
	Very Much	22	91.7	91.7	100.0
	Total	24	100.0	100.0	

Linked you to a support group of teachers?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all	1	4.2	4.2	4.2
	A little	3	12.5	12.5	16.7
	Moderately	7	29.2	29.2	45.8
	Very Much	13	54.2	54.2	100.0
	Total	24	100.0	100.0	

Provided useful teaching resources?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Moderately	1	4.2	4.2	4.2
	Very Much	23	95.8	95.8	100.0
	Total	24	100.0	100.0	

How much assigned homework did you do?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Most	6	25.0	25.0	25.0
	All	18	75.0	75.0	100.0
	Total	24	100.0	100.0	

Appendix H – Survey Frequencies

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How much homework did you turn in on time?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Half	3	12.5	12.5	12.5
	Most	6	25.0	25.0	37.5
	All	15	62.5	62.5	100.0
	Total	24	100.0	100.0	

How many class sessions did you miss?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	None	14	58.3	58.3	58.3
	Some	9	37.5	37.5	95.8
	Most	1	4.2	4.2	100.0
	Total	24	100.0	100.0	

How many of the three algebra courses did you complete?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	One	1	4.2	100.0	100.0
Missing	Not Apply	23	95.8		
Total		24	100.0		

Why not complete all 3 courses: Too much work expected

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Some	1	4.2	100.0	100.0
Missing	Not Apply	23	95.8		
Total		24	100.0		

Why not complete all 3 courses: Too big a time commitment

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-3 Main reasons	1	4.2	100.0	100.0
Missing	Not Apply	23	95.8		
Total		24	100.0		

Appendix H – Survey Frequencies

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Why not complete all 3 courses: Travel/logistical problems

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-3 Main reasons	1	4.2	100.0	100.0
Missing	Not Apply	23	95.8		
Total		24	100.0		

Why not complete all 3 courses: Material not relevant to teaching

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-3 Main reasons	1	4.2	100.0	100.0
Missing	Not Apply	23	95.8		
Total		24	100.0		

Why not complete all 3 courses: Friends dropped out

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not reasons	1	4.2	100.0	100.0
Missing	Not Apply	23	95.8		
Total		24	100.0		

Why not complete all 3 courses: Did not match my learning style

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Secondary reasons	1	4.2	100.0	100.0
Missing	Not Apply	23	95.8		
Total		24	100.0		

Why not complete all 3 courses: Level of instruction too difficult

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Secondary reasons	1	4.2	100.0	100.0
Missing	Not Apply	23	95.8		
Total		24	100.0		

Appendix H – Survey Frequencies

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Why not complete all 3 courses: Personal life complications

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not reasons	1	4.2	100.0	100.0
Missing	Not Apply	23	95.8		
Total		24	100.0		

Why not complete all 3 courses: Other reason

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not reasons	1	4.2	100.0	100.0
Missing	Not Apply	23	95.8		
Total		24	100.0		

Other reason for not completing all 3 courses (open end)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Applicable	24	100.0	100.0	100.0

Please rate the instructor for the assessment course.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3	1	4.2	4.3	4.3
	4	5	20.8	21.7	26.1
	5 Excellent	17	70.8	73.9	100.0
	Total	23	95.8	100.0	
Missing	Not Apply	1	4.2		
Total		24	100.0		

The assessment course... provided you with useful classroom strategies?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	A little	1	4.2	4.5	4.5
	Moderately	5	20.8	22.7	27.3
	Very much	16	66.7	72.7	100.0
	Total	22	91.7	100.0	
Missing	Not Apply	1	4.2		
	Missing	1	4.2		
	Total	2	8.3		
Total		24	100.0		

Appendix H – Survey Frequencies

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The assessment course... linked you to a support group of teachers?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not at all	2	8.3	9.1	9.1
	A little	1	4.2	4.5	13.6
	Moderately	8	33.3	36.4	50.0
	Very much	11	45.8	50.0	100.0
	Total	22	91.7	100.0	
Missing	Not Apply	1	4.2		
	Missing	1	4.2		
	Total	2	8.3		
Total		24	100.0		

The assessment course... increased your teaching effectiveness?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	A little	2	8.3	9.5	9.5
	Moderately	4	16.7	19.0	28.6
	Very much	15	62.5	71.4	100.0
	Total	21	87.5	100.0	
Missing	Not Apply	1	4.2		
	Missing	2	8.3		
	Total	3	12.5		
Total		24	100.0		

Value of: Formative evaluation guides

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3	3	12.5	12.5	12.5
	4	12	50.0	50.0	62.5
	5 Most valuable	9	37.5	37.5	100.0
	Total	24	100.0	100.0	

Value of: Teaching guides

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3	2	8.3	8.3	8.3
	4	8	33.3	33.3	41.7
	5 Most valuable	14	58.3	58.3	100.0
	Total	24	100.0	100.0	

Appendix H – Survey Frequencies

Prepared by the University of Chicago Survey Lab

Value of: Student activity guides for problem-solving and writing about math

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	3	1	4.2	4.3	4.3
	4	5	20.8	21.7	26.1
	5 Most valuable	17	70.8	73.9	100.0
	Total	23	95.8	100.0	
Missing	Missing	1	4.2		
Total		24	100.0		

Value of: Project facilitator visits

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Least valuable	3	12.5	13.0	13.0
	2	1	4.2	4.3	17.4
	3	3	12.5	13.0	30.4
	4	6	25.0	26.1	56.5
	5 Most valuable	10	41.7	43.5	100.0
	Total	23	95.8	100.0	
Missing	Missing	1	4.2		
Total		24	100.0		

Value of: Graduate courses in algebra (3 courses)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Least valuable	1	4.2	4.2	4.2
	4	1	4.2	4.2	8.3
	5 Most valuable	22	91.7	91.7	100.0
	Total	24	100.0	100.0	

Value of: Graduate course in assessment (1 course)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1 Least valuable	1	4.2	4.3	4.3
	3	2	8.3	8.7	13.0
	4	4	16.7	17.4	30.4
	5 Most valuable	16	66.7	69.6	100.0
	Total	23	95.8	100.0	
Missing	Missing	1	4.2		
Total		24	100.0		

Appendix H – Survey Frequencies

Prepared by the University of Chicago Survey Lab

Effect on use of: Peer interaction teaching methods

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	A little less	1	4.2	4.2	4.2
	A little more	8	33.3	33.3	37.5
	A lot more	15	62.5	62.5	100.0
	Total	24	100.0	100.0	

Effect on use of: Student initiated cognitive and meta-cognitive techniques

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	A little less	1	4.2	4.2	4.2
	A little more	5	20.8	20.8	25.0
	A lot more	18	75.0	75.0	100.0
	Total	24	100.0	100.0	

Effect on use of: Practice

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	A little less	1	4.2	4.2	4.2
	A little more	5	20.8	20.8	25.0
	A lot more	18	75.0	75.0	100.0
	Total	24	100.0	100.0	

Effect on use of: Teacher-initiated instruction

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	A lot less	1	4.2	4.3	4.3
	A little less	1	4.2	4.3	8.7
	The same (no effect)	1	4.2	4.3	13.0
	A little more	8	33.3	34.8	47.8
	A lot more	12	50.0	52.2	100.0
	Total	23	95.8	100.0	
Missing	Missing	1	4.2		
Total		24	100.0		

Appendix H – Survey Frequencies

Prepared by the University of Chicago Survey Lab

Effect on use of: Teaching to multiple learning styles

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	The same (no effect)	1	4.2	4.2	4.2
	A little more	7	29.2	29.2	33.3
	A lot more	16	66.7	66.7	100.0
	Total	24	100.0	100.0	

Effect on use of: Reframing techniques

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	A lot less	1	4.2	4.2	4.2
	A little less	1	4.2	4.2	8.3
	The same (no effect)	1	4.2	4.2	12.5
	A little more	7	29.2	29.2	41.7
	A lot more	14	58.3	58.3	100.0
	Total	24	100.0	100.0	

Effect on use of: Applications and practical examples

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	A little more	8	33.3	33.3	33.3
	A lot more	16	66.7	66.7	100.0
	Total	24	100.0	100.0	

Effect on use of: Affective domain

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	A little less	1	4.2	4.2	4.2
	The same (no effect)	3	12.5	12.5	16.7
	A little more	8	33.3	33.3	50.0
	A lot more	12	50.0	50.0	100.0
	Total	24	100.0	100.0	

Appendix H – Survey Frequencies

Prepared by the University of Chicago Survey Lab

Effect on use of: Assessment

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	The same (no effect)	3	12.5	13.0	13.0
	A little more	8	33.3	34.8	47.8
	A lot more	12	50.0	52.2	100.0
	Total	23	95.8	100.0	
Missing	Missing	1	4.2		
Total		24	100.0		

Effect on use of: Teacher instruction of cognition

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	The same (no effect)	1	4.2	4.2	4.2
	A little more	9	37.5	37.5	41.7
	A lot more	14	58.3	58.3	100.0
	Total	24	100.0	100.0	

Would you encourage or discourage other teachers from taking part in similar programs?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Encourage	23	95.8	100.0	100.0
Missing	Missing	1	4.2		
Total		24	100.0		

If you had it to do over again, would you still enroll?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Yes	23	95.8	100.0	100.0
Missing	Missing	1	4.2		
Total		24	100.0		

A group-building, bonding experience with teachers inside your school

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-3 Main reasons	12	50.0	52.2	52.2
	Secondary reasons	10	41.7	43.5	95.7
	Not reasons	1	4.2	4.3	100.0
	Total	23	95.8	100.0	
Missing	Missing	1	4.2		
Total		24	100.0		

Appendix H – Survey Frequencies

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A chance to communicate and share ideas with teachers outside your school

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-3 Main reasons	13	54.2	56.5	56.5
	Secondary reasons	8	33.3	34.8	91.3
	Not reasons	2	8.3	8.7	100.0
	Total	23	95.8	100.0	
Missing	Missing	1	4.2		
Total		24	100.0		

Practical value in the classroom

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-3 Main reasons	21	87.5	91.3	91.3
	Secondary reasons	1	4.2	4.3	95.7
	Not reasons	1	4.2	4.3	100.0
	Total	23	95.8	100.0	
Missing	Missing	1	4.2		
Total		24	100.0		

Credentials for advancement

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-3 Main reasons	18	75.0	81.8	81.8
	Secondary reasons	4	16.7	18.2	100.0
	Total	22	91.7	100.0	
Missing	Missing	2	8.3		
Total		24	100.0		

Increased own knowledge, skill

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-3 Main reasons	20	83.3	95.2	95.2
	Secondary reasons	1	4.2	4.8	100.0
	Total	21	87.5	100.0	
Missing	Missing	3	12.5		
Total		24	100.0		

Appendix H – Survey Frequencies

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Other

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	1-3 Main reasons	2	8.3	66.7	66.7
	Not reasons	1	4.2	33.3	100.0
	Total	3	12.5	100.0	
Missing	Not Apply	20	83.3		
	Missing	1	4.2		
	Total	21	87.5		
Total		24	100.0		

Other (open end)

Build knowledge in subject area
I believe there should be a link between the Elementary, High School, and the University. It should be a lifetime relationship, not just for a quarter, semester or year.
Left Blank (1 entry)

Doesn't fit in with school schedule

		Frequency	Percent
Missing	Not Apply	23	95.8
	Missing	1	4.2
	Total	24	100.0

Too much work in general

		Frequency	Percent
Missing	Not Apply	23	95.8
	Missing	1	4.2
	Total	24	100.0

Too stressful while working

		Frequency	Percent
Missing	Not Apply	23	95.8
	Missing	1	4.2
	Total	24	100.0

Not helpful for teaching

		Frequency	Percent
Missing	Not Apply	23	95.8
	Missing	1	4.2
	Total	24	100.0

Appendix H – Survey Frequencies

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Not challenging enough

		Frequency	Percent
Missing	Not Apply	23	95.8
	Missing	1	4.2
	Total	24	100.0

Other

		Frequency	Percent
Missing	Not Apply	23	95.8
	Missing	1	4.2
	Total	24	100.0

Other (open end)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Applicable	21	100.0	100.0	100.0
	Total	24	100.0	100.0	

Marginal comments & Data Entry Notes

None (17 entries)
[Even though checked yes for Q20, Checked 1 for Q20B - Doesn't fit in with school schedule]
[Q13 - a double check beyond the "5" of excellent]
[Q15B - R marked 4 but put a caveat with a margin note saying "Not clear about which guides"] [Q20 R answered "yes" but added this note to other specify for "No": Many teachers teach after-school programs and find it difficult to take on classes for self-development at the same time]
[Q17 grammatical errors as written - this response heavily erased and re-written]
[Q17 grammatical errors as written]
[Q7 although said never interacted with facilitator as part of program, margin note says did during class at U of C and is answering this question on that basis][Q13 and Q14 - Margin note that did not register for this course]
[Q8 - both 1 and 2 are checked - created new cooperative spirit and boosted existing spirit]

Appendix H – Survey Frequencies

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R has a master's degree

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Has a BA only	10	41.7	41.7	41.7
	Has a master's degree	14	58.3	58.3	100.0
	Total	24	100.0	100.0	

R has any non-education degree

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	All post-secondary degrees are in education	14	58.3	58.3	58.3
	Has some degree in a non-education field	10	41.7	41.7	100.0
	Total	24	100.0	100.0	

Appendix H – Survey Frequencies

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Grade(s) R teaching during course

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	5	4	16.7	16.7	16.7
	6	1	4.2	4.2	20.8
	6 thru 8	1	4.2	4.2	25.0
	7	2	8.3	8.3	33.3
	7 & 8	2	8.3	8.3	41.7
	7 & 8 Special Ed.	1	4.2	4.2	45.8
	8	9	37.5	37.5	83.3
	K-8	3	12.5	12.5	95.8
	PreK-8	1	4.2	4.2	100.0
	Total	24	100.0	100.0	

Total years of teaching experience

	N	Minimum	Maximum	Mean	Std. Deviation
Total years of teaching experience	24	2	34	13.58	8.900
Valid N (listwise)	24				

Total years of teaching with CPS

	N	Minimum	Maximum	Mean	Std. Deviation
Total years of teaching with CPS	24	2	34	12.79	8.698
Valid N (listwise)	24				

Years at current school through 2005

	N	Minimum	Maximum	Mean	Std. Deviation
Years at current school through 2005	24	2	34	8.96	7.827
Valid N (listwise)	24				

CSMI professional development during the past year

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	12	50.0	50.0	50.0
	Yes	12	50.0	50.0	100.0
	Total	24	100.0	100.0	

Appendix H – Survey Frequencies

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Math professional development during the past year

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	10	41.7	41.7	41.7
	Yes	14	58.3	58.3	100.0
	Total	24	100.0	100.0	

Students receive after school math instruction

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	11	45.8	45.8	45.8
	Yes	13	54.2	54.2	100.0
	Total	24	100.0	100.0	

Students received additional math instruction during school

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	14	58.3	58.3	58.3
	Yes	10	41.7	41.7	100.0
	Total	24	100.0	100.0	

Self-contained classroom

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	14	58.3	58.3	58.3
	Yes	10	41.7	41.7	100.0
	Total	24	100.0	100.0	

Hours spent teaching math

	N	Minimum	Maximum	Mean	Std. Deviation
Hours spent teaching math	23	.5	3.0	1.359	.6520
Valid N (listwise)	23				

Appendix H – Survey Frequencies

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What are the most important things the program did for you?

-To implement various assessment tools - Learned new math strategies - Used math activities performed in class with my students (love the Frog activity)
1) Built my core knowledge - reviewed & reinforced 2) Presented resources for a more interactive teaching style 3) gave me an opportunity to talk about math with "math people" - shared ideas, strategies, successes & failures 5) Strengthened long-range planning 6) New materials introduced
helped me teach math in a new deeper, more meaningful way
It allowed be to transfer my limited knowledge of algebra concepts into engaging hands on 'real' experiences for the students. It also allowed me to interact with my colleagues to brainstorm new strategies for teaching algebra.
It helped me overcome some math anxieties I personally had, and it answered questions I've always had about math.
It reminded me that my students can develop stronger algebraic skills and go further in algebra. We now use graphing calculators by the end of the year.
Left blank (4 entries)
Reading and analyzing problems. Doing problems with steps.
reinforced my algebra skills. They were skills and facts that I haven't used in many years to this extent.
Reinforced strategies that I was using and gave me resources for my classes. Meeting with other teachers who taught math was great. The teachers at DePaul were excellent and extremely supportive. It was a fantastic experience.
Show how algebra can be connected at all grade levels.
The algebraic thinking model has really stayed with me as well as the fun activities.
The most important things the program did for me is to provide a learning environment where teachers can discuss and interchange ideas and different effective strategies. The materials were excellent! (smiley face drawn in)
The most important things the program did for me was to help me solve math equations, use variable, and integrate math with all subjects area.
The program allowed me to focus more on student learning and understanding by the use of a variety of learning strategies. Working in small groups has proved very successful and the students enjoy learning from this practice.
The program gave me a better understanding of the teaching and the importance of teaching algebra in middle school.
The program gave me confidence in a subject area that I had no confidence in doing, let alone teaching.
The program improved my knowledge of both, math content and pedagogy. It provided me with a new vision, a more effective way to teach mathematics. During the program, I learned how to become a facilitator rather than a lecturer. I also took more risks. I had my fifth graders working on some of the very problems my colleagues and I solved during class. Using manipulatives, my students were able to explore different ways to solve those problems and present the solutions to the class. These are some of the most important things the program did for me.
The program reinforced what I already knew about Math and practices in an inclusive classroom.
The program taught me creative ways to teach algebra.
When I was in the math program, I learn different strategies to work with the students.

Appendix H – Survey Frequencies

Prepared by the University of Chicago Survey Lab

How, if at all, is the program continuing to have an impact on your teaching today?

At present, the program continues having an impact on my teaching. Recently, I asked my students whether they preferred to work on a rich problem by designing their own solutions, or had me explain how to solve it. I was very pleased with their response and did not felt offended at all. Most of them said they could work it out in their groups. In my opinion, this is an excellent way for my students to learn that when given a problem, they can think their way through solution, even if it is different from other people's solutions.
I'm able to bring interesting activities to the class that allows everyone to participate at some level.
I am currently the math specialist. I use the tools of the 4 classes with the instruction and I do for teachers teaching math in self-contained classes. Math path helps them & students to process. I also use my program skills in small group settings with students, both struggling & accelerated learners. I continue to work with program educators to enhance my learning and teaching.
I am no longer a classroom teacher; however, I have passed on activities and organizers (i.e. Math Path) to teachers and encouraged them to use them.
I am not in the program now, but when I do work with math, I try to use some of the strategies and games that I learned when I was in the class.
I continue to use all of the practices that were taught to me during these sessions. they have made me a better teacher.
I continue to use the resources from DePaul. Group work and problem solving are always used. Modeling and having students create their own problem are all central to my instruction. Journal and math path are also integrated in instruction.
I encourage my students to talk out their anxieties with their peers who do understand math concepts, because I felt having my peers explain things helped me to better understand some things. I felt that when I did understand something I could explain it to others well.
I still use collaborative small grouping, peer coaching, and math path for problem solving. The students seem to have a higher comfort level of understanding math.
I use many, if not all, of the new strategies and approaches that I learned during the course.
I use most of the material to prepare for the ISAT preparation reviews
I will continue to teach math in a thoughtful, research based way
I will incorporate some of the strategies learned throughout this course continuously
It makes me want to engage students in solving problems. Just for them to try is satisfying to me.
It reinforced my desire to do cross-grade level tutoring and incorporated more games into math class.
Left blank (3 entries)
My confidence has increased as a teacher of math. I use many of the strategies I learned in this program with my students. I have also received a masters degree in math education because of my experience in this program and encouraged other teachers to enroll as well.
The program has had a very positive impact on my teaching because it has allowed me to pass on my new found confidence in algebra to my students. Because I am enthusiastic about it, they have a more positive approach to it.
The program have continue to impact my teaching today, because I often use all the math materials and resources I received when I was attending the classes.
This program continues to impact my teaching today because I still use the problem-solving strategies I learned in class.
Using the materials from the class in my class, currently. It is exciting!!
Yes, continuing with strategies learned.

Appendix H – Survey Frequencies

Prepared by the University of Chicago Survey Lab

Is there anything else you wanted to say about the program?

Both instructors (Lynn and Jim) were very knowledgeable and helpful. I would encourage others to take this course if it was filled with upper-level math teachers.
I am a "math person." I enjoy the subject, enjoy teaching the subject & enjoy sharing the subject. This is not the general feeling about math among teachers. My colleagues were "afraid" to participate in these courses because they doubt their own abilities. In my current role as math specialist, I attend professional development with the teachers that I service. They say that they are (even) uncomfortable at P.D. without the support of their "math person" (me). I am concerned that too few teachers are willing to explore math. How do we market math better?
I appreciate the opportunity to participate in the program.
I feel it was a very worthwhile program and more teachers should take advantage of it. It has really jumpstarted my math teaching.
I feel that the program is very useful to take and you will learn a lot of skills and strategies that you can take back to your school and class to work with students.
I learned so much in the short time I was in this program. It was a delight working with my facilitator who was very knowledgeable in the perfect area. Thank you!
I really enjoyed the colleagues from other schools I met there, and I will always remember that cohort.
I really enjoyed the program. The instructors (Algebra courses & Assessment course) were great. I liked the text that was used, especially book 2. We received a lot of classroom materials, which was great. These materials allowed us to perform the activities we performed in class with our students.
I want to say thank you for this most rewarding experience. The benefits I derived from it are invaluable. Please continue providing these excellent programs.
I would and have definitely recommended this program to others who have been offered the chance. The professors are fabulous and understand the difficulties faced by today's teachers.
It gives me a new way of looking at math.
It is a GREAT program. It is administered quite effectively. The instructors are excellent. And last but not least, When can I do it again?
It is an excellent program.
It was a great opportunity!
Left blank (6 entries)
No, It was a great program. I am very glad that I was a part of it.
Not at this time. Thanks.
The program and the instructor was EXCELLENT.
This program has made teachers who were or are anxious about teaching math feel more confident about their math knowledge and teaching skills. The instructors have allowed students to seek assistance whenever there were questions or whenever concepts needed to [sic] broken down to make sure students (classroom at school) understood lessons clearly. The instructors have always been patient and helpful. I hope this program continues.

Appendix H – Survey Frequencies

Prepared by the University of Chicago Survey Lab

Mention of program providing R with more or more effective teaching skills

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Present	10	41.7	45.5	45.5
	Present	12	50.0	54.5	100.0
	Total	22	91.7	100.0	
Missing	Missing	2	8.3		
Total		24	100.0		

Mention of program as a motivator for teacher

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Present	17	70.8	77.3	77.3
	Present	5	20.8	22.7	100.0
	Total	22	91.7	100.0	
Missing	Missing	2	8.3		
Total		24	100.0		

Mention of program as a source of good ideas & strategies

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Present	4	16.7	18.2	18.2
	Present	18	75.0	81.8	100.0
	Total	22	91.7	100.0	
Missing	Missing	2	8.3		
Total		24	100.0		

Mention of program as a source of good materials

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Present	11	45.8	50.0	50.0
	Present	11	45.8	50.0	100.0
	Total	22	91.7	100.0	
Missing	Missing	2	8.3		
Total		24	100.0		

Still finds strategies helpful / still uses what learned

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Present	6	25.0	27.3	27.3
	Present	16	66.7	72.7	100.0
	Total	22	91.7	100.0	
Missing	Missing	2	8.3		
Total		24	100.0		

Appendix H – Survey Frequencies

Prepared by the University of Chicago Survey Lab

Still finds materials helpful / still uses materials

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Present	13	54.2	59.1	59.1
	Present	9	37.5	40.9	100.0
	Total	22	91.7	100.0	
Missing	Missing	2	8.3		
Total		24	100.0		

Mention of program boosting teacher's confidence in math or teaching math

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Present	19	79.2	86.4	86.4
	Present	3	12.5	13.6	100.0
	Total	22	91.7	100.0	
Missing	Missing	2	8.3		
Total		24	100.0		

Mention of program's approach helping teachers lower student anxiety about math

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Present	19	79.2	86.4	86.4
	Present	3	12.5	13.6	100.0
	Total	22	91.7	100.0	
Missing	Missing	2	8.3		
Total		24	100.0		

Mention of program connecting R to other teachers

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Present	18	75.0	81.8	81.8
	Present	4	16.7	18.2	100.0
	Total	22	91.7	100.0	
Missing	Missing	2	8.3		
Total		24	100.0		

Mention of program connecting R with experts

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Present	19	79.2	86.4	86.4
	Present	3	12.5	13.6	100.0
	Total	22	91.7	100.0	
Missing	Missing	2	8.3		
Total		24	100.0		

Appendix H – Survey Frequencies

Prepared by the University of Chicago Survey Lab

Mention of program improving R's math skills

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Present	15	62.5	68.2	68.2
	Present	7	29.2	31.8	100.0
	Total	22	91.7	100.0	
Missing	Missing	2	8.3		
Total		24	100.0		

Mention of why math is important at grade levels R teaching

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Present	18	75.0	81.8	81.8
	Present	4	16.7	18.2	100.0
	Total	22	91.7	100.0	
Missing	Missing	2	8.3		
Total		24	100.0		

Mention of program as helpful for planning teaching program

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Present	21	87.5	95.5	95.5
	Present	1	4.2	4.5	100.0
	Total	22	91.7	100.0	
Missing	Missing	2	8.3		
Total		24	100.0		

Gives some global positive assessment

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not Present	8	33.3	36.4	36.4
	Present	14	58.3	63.6	100.0
	Total	22	91.7	100.0	
Missing	Missing	2	8.3		
Total		24	100.0		

Appendix I – Coding Open-ends in Main Survey
Prepared by the University of Chicago Survey Lab

The main survey included three open-response questions:
1. What are the most important things the program did for you?
2. How, if at all, is the program continuing to have an impact on your teaching today?
3.Is there anything else you wanted to say about the program?

After reading through the responses and attempting several coding schemes, we settled on the following list of codes with definitions as shown. In each case the rule was that there needed to be some actual text in the response that signaled the code. The text did not have to spell something out verbatim, but the code could not be inferred through logic alone – there had to be text on which the inferred meaning was based.

Respondents did not always stick to the question in the spaces associated with the questions. We applied the list of codes to cases based on text that showed up in any of the three fields.

Code	Definition
TeachWell	Mention of program providing R with more or more effective teaching skills or of improving R's teaching skills. Example: The program improved my knowledge of both, math content and pedagogy.
MotivateTeacher	Mention of program as a motivator for teacher, teacher is now more excited about math, about teaching math or about working with students. Example: It reminded me that my students can develop stronger algebraic skills and go further in algebra. We now use graphing calculators by the end of the year.
IdeaSource	Mention of program as a source of good ideas & strategies for the classroom. These ideas might come from other teachers in the program or from the instructors. Example: The program allowed me to focus more on student learning and understanding by the use of a variety of learning strategies. Working in small groups has proved very successful and the students enjoy learning from this practice.

Code	Definition
MaterialsSource	Mention of program as a source of good materials or non-people resources. Example: New materials introduced
StillUseStrategies	Still finds strategies helpful / still uses what learned; In one case the teacher had retired but reported passing along the materials and strategies to other active teachers – we counted this here as well.

	Example: I continue to use all of the practices that were taught to me during these sessions.
StillUseMaterials	Still finds materials helpful / still uses materials Example: I use most of the material to prepare for the ISAT preparation reviews
TeacherConfidence	Mention of program boosting teacher's confidence in math or teaching math or reducing the teacher's math anxiety. Example: The program gave me confidence in a subject area that I had no confidence in doing, let alone teaching.
LessStdntAnxiety	Mention of program's approach helping teachers lower student anxiety about math. Example: …it has allowed me to pass on my new found confidence in algebra to my students. Because I am enthusiastic about it, they have a more positive approach to it.
TeachersConnect	Mention of program connecting R to other teachers or providing a forum in which teachers could exchange ideas about teaching math. Example: The most important things the program did for me is to provide a learning environment where teachers can discuss and interchange ideas and different effective strategies.
ExpertConnect	Mention of program connecting R with experts outside their school Example: The instructors have allowed students to seek assistance whenever there were questions …The instructors have always been patient and helpful. I hope this program continues.

Code	**Definition**
MathSkill	Mention of program improving R's math skills, of teaching R specific math skills or of getting R back up to speed in math Example: Reinforced my algebra skills. They were skills and facts that I haven't used in many years to this extent.
WhyMath	Mention of why math is important at grade levels R teaching, how math can be linked to other subjects, the importance of math in the curriculum Example: Show how algebra can be connected at all grade levels.
Planning	Mention of program as helpful for planning teaching program Example: Strengthened long-range planning
OverallPositive	Gives some global positive assessment Example: It was a great opportunity!

Appendix I – Coding Open-ends in Main Survey
Prepared by the University of Chicago Survey Lab

A COMPILATION OF KEY POINTS FROM TEACHER INTERVIEWS

The following is a "deduplicated" summary of the content from interviews with six teachers who withdrew from the program prior to the end of the first class. When more than one teacher made the same point, it is included here only once. This describes the range of experience for this group of teachers. Throughout, "R" is used as an abbreviation for "respondent".

Where spoke with R

- cafeteria downstairs, seated at cafeteria table, a few other people in cafeteria but not nearby
- phone interview, R difficult to reach
- phone interview, R no longer in Chicago area. R retired and has not taught since the year R enrolled in this program.
- room in school like a part-time nurse's station, no interruptions or others nearby
- kindergarten classroom near main office in R's school, no others present
- 1st or 2nd grade classroom at R's school, no others present

Where R heard about program

- "here in school," there was some sort of notice; not sure if heard during a meeting with principal or during a grade-level meeting; just heard there was a program if anyone was interested
- regional math coach—person for school region who comes several times a year to check whether teachers are implementing the curriculum appropriately
- during staff meeting, another faculty member who likely heard of program directly from program staff; faculty member presented the program and people reacted positively to the idea of the program
- entering program was not a choice; R was told by principal that R had been chosen as part of a group to participate; R says jokingly that R received an "order" to attend
- R heard about program during a meeting for 6th-8th grade teachers; a general notice was given at the meeting that stated that anybody interested should enroll.
- at R's current school, all new teachers go to a nearby University "to see how curriculum is done." R learned about the program from this connection.

How R signed up for program

- given a stack of papers to fill out, had to write a paragraph about why wanted to participate/why interested; not a difficult process but unclear why the program needed so much information, but you have to do that for any college course nowadays.
- R recalls there being "connectors" from a nearby University; they connected R and other teachers to the math program

What interested R in program

- program was going to find fun ways to teach you to teach math and would connect math with science and other content areas; R wanted to have the experience because R was "really bad at math" and wanted to "throw myself out there;" math is R's weakest point and R wanted to improve own math skills and get ideas for use in the classroom and for connecting math to other subject areas
- the word "connections" interested R because R took a program 10 years ago called "connectors" that R enjoyed very much; so R thought this would be a continuation of that, but it wasn't
- R wanted to connect and study with other people and thought it would be interesting; R expected the program to be a chance to "study" with other people and the program met these expectations
- R wanted to learn new instructional methods for math and ways of engaging the students
- R thought the program would help R be a better teacher; R had taken previous "connector" courses and expected this course to be similar in its format and goals
- R had never taught math before and wanted help because R felt anxious; Also, several teachers from R's school signed up together

Program met R's expectations

- it did, though R only attended between 3-5 classes; the program did not fall short of R's expectations at all
- did not meet expectations at all; program was much more theoretical (versus "connectors" program, which was very practical concerning the methods of teaching). This course was geared toward students with a stronger knowledge of both reading and math than R's students. R expected strategies to bridge the gap between skill levels of R's students, but the course assumed a baseline level of skill that R's students did not have. The course assumptions did not fit the population R was teaching. The materials they were supposed to be using included things the children had to read and some of this R's kids simply didn't read. Others were struggling readers.
- R found the program very effective, as it allowed R to observe how different people learn and solve problems; however, R had no expectations for the program and did not know what R was getting into. Program also emphasized new ways of teaching math more quickly and logically.
- R thought the program would be about methods to use in the classroom, different strategies for teaching, and new ways of teaching math, but the first class meeting seemed to be an evaluation of teachers' abilities. R felt as though they were being tested on things R did not know and R felt very overwhelmed by the level at which material was presented. R only received a syllabus on the first day of class, but had assumed that the program would be like the connectors programs, with which R felt comfortable.
- R suggested the program did meet expectations regarding being able to "study" with other teachers. R was especially happy with the facilitators who were very supportive of the teachers and helped with any problems teachers had. Presenters also made the material easy to understand.

R knew other people from school doing program

- 4 other teachers from R's school attended, of whom R was closer to 2. The participation of those 2 made R more enthusiastic about program, but R did not know until began attending who would be in program for sure; R liked knowing others beforehand for the group work portions of course
- One other teacher from R's school attended course. R talks to other teacher but never discussed the course and never heard from the attendee that there was a classroom evaluation. Each teacher decided independently to join and presence of other teacher did not affect R's decision at all.
- R says ~5 people from R's school attended
- R says 2-3 other people from R's school attended, but R never spoke with the others about the program. R is unsure how the others were recruited for the program, but the other teachers were much more experienced than R, who was a first year teacher teaching "everything" at the time, but it was so early in the year that R did not yet know other teachers well. The other teachers seemed excited to learn new teaching techniques but shared R's concern with the amount of time required for the course. The other teachers apparently did not feel well prepared for the curriculum either.
- R enrolled completely independently but found out after dropping out that another teacher from R's school had enrolled. Had R known of other teacher's presence, R might have stayed longer. The other teacher later said R should have stayed and that he could have helped R with the challenging course materials. The other teacher said the course did eventually teach different ways of teaching math in the classroom and said he would have helped R had R remained in the program
- About 5 teachers from R's school participated. R really liked being part of a group and would have been somewhat scared going alone. R implies participation was linked to other teachers, though R would probably have attended anyway. The group of teachers all decided to sign up together. After R dropped, the other teachers still discussed the program with R, but not in detail. The others seemed to be enjoying it, though R did not hear the substance of what they were learning. It sounded like fun.

Changed Dynamics among other teachers from same school

- R got to know other participants a bit better but did not continue to discuss course with them when R dropped, dynamics between teachers were unchanged
- R responds affirmatively that the program allowed R to know others at R's school better. Teachers discussed homework together and would often present things they learned in class the next day. Teachers who could not attend were not upset because they were slated to participate the next year.
- R says the program did not change dynamics between teachers. Teachers in the program did not discuss it with those who were not and those not in the program did not ask for information. R really enjoyed being part of a group because they could talk to one another about what worked with different ages and other similar things. The course was easier and better because of the others at the same school participating. R became closer to the other participants, and they got to know one another better from the program.

Meeting teachers from other schools

- R did not get to know anyone from other schools during course
- R says there were no introductions on the first day, that the program just began right away with the material.
- Originally teachers talked mainly to others from the same school, but they started to talk to others after a while. R did not stay in touch with any of the people from other schools met through the program.
- R said did interact with teachers from other schools to some extent.
- R did not interact with teachers from other schools.

Class schedule/Time demands

- Classes met on Tuesday but were possibly going to be moved to Saturday, pending a vote of students. R would *not* have attended if classes moved to Saturday because weekends are precious to R – "leave my weekends alone". R says this is the case for most teachers
- R was tired at the end of school day and did not want to spend the additional effort of going to class if the class gave nothing R could use immediately. The course gave a lot of credit hours, but R's principal does not care about credit hours – principal wanted course to benefit the students, not be about teacher's own career development.
- Class met once a week "downtown" or near DePaul. R did not give an opinion of meeting times or locations
- R had concern (shared with other teachers from R's school) that the program was too time-consuming. R recalls meeting 2 days a week, right after work in a "busy area" where there was lots of traffic. It was on the DePaul campus which was not convenient. R says a location closer to R's school would be better than a different time of day for meeting

Homework

- Not too hard or too much, "just like average". However, at first, "you haven't done homework in a while, so you're like, 'Aahhhh!' but it was fine". Similar amount and difficultly level of homework from other courses R has taken
- The main thing R remembers other teachers from R's school discussing is homework. When other teachers asked about the program, they often asked about the extent and difficulty of the homework. R said the presenters made sure everyone could understand the homework. Later on, R said homework was somewhat challenging but on par with what R was teaching in the classroom, so not beyond what could be reasonably expected. They were given 2-3 problems to work on, but it was enjoyable, "like sitting down with a good book".
- Other teachers from R's school were surprised by the level of the course materials, as it was not material they were familiar with (algebra and geometry) though R thought this was typical 8th grade material. R found the homework and the reading challenging because R was very busy with other things. The work was both time-consuming and challenging. R isn't sure if R's trouble with the work was simply a reflection of R's lack of extra time. R says other teachers

from R's school found the work challenging as well, but teachers from other schools seemed engaged and did not express concern with the workload.
- R says some of the material was too advanced for R's students. The course itself was at the right level for R – challenging but not too hard. R says it's similar to the master's level courses R is currently enrolled in. R thought the time commitment was reasonable.

Transportation
- Transportation was not a problem because R had a car and parking was easy. However, when R got into a car accident, transportation became a major issue because R would have had to take 2 buses to attend
- Teachers were expected to be at DePaul at 3:30 when school only ends at 2:45, which doesn't allow much time for travel. Could organize program at clusters of schools in nearby areas and have classes there or rotate from school to school to cut down on travel time
- R says the program took place in very busy area with lots of traffic. Although parking was made available to participants, it was still inconvenient. R would have preferred to have the course nearer to R's school, which would have been more central for most participants

Memories of class
- Given two books, did activities while in class, given homework, "like a real class"
- R remembered that presenters wanted feedback about *how* children derived their answers to problems, step by step. R enjoyed learning new approaches to teaching, as R was a longtime teacher and approaches change over time. The opportunity to learn new methods was very positive. R appreciated Dr. Radner's sense of humor.
- R remembers working in groups to solve problems which was enjoyable. Later on, R states R does not enjoy group work and would have appreciated more teaching for independent learners as well
- R remembers learning Microsoft Excel and really enjoying this. R liked that things learned in the program were directly applicable to the classroom. Each session began with a bit of debriefing on how the techniques worked in the classroom, such as what worked and what didn't. The technology aspect of the course is the most essential component, most beneficial.

Materials from class
- R received a game, a packet of worksheets to cut out and a bag of beans/manipulatives for use in class. Used them right away because the facilitator came to check, but would have used the materials anyway. Does not use them anymore because R no longer teaches math
- R really liked that things learned in course were immediately applicable. R could not remember specifics but remembered receiving materials from the course.
- R no longer teaches math so does not use materials anymore. The math curriculum at R's school was changed the year after the program, so R thinks similar techniques were then part of the curriculum, so R probably used those

techniques. R remembers surveys for the students that were very helpful because they showed R where students were going wrong in their work. R received a math path sheet and a math or algebra connection sheet as well as a textbook with readings.

- R did *not* like the surveys for students. R's students hated doing them and R didn't think students' answers were helpful or truthful. Also the surveys took a lot of time, almost an hour each time. R remembers receiving counter beans, graphic organizers and manipulatives. R still uses these materials. R's teaching is still affected, in that R learned to always make students explain what they've done even when it is simple. R also learned it is helpful for students to see multiple ways to solve problems and to learn different strategies. Also, R believes that the course made R more comfortable with math, which has helped R show students that math is not scary. In addition, students see that it is not a big deal to make a mistake.

Teacher/Class time

- R liked the teacher, he went over everything and explained it very thoroughly, including the homework. Teacher gave opportunities for class discussion so students could share new ways to solve problems. Course included lots of group work, which R views as positive.
- R found the classes boring in their own right, in addition to the fact that they were not geared to help R's particular students. Also, sitting for 3 hours after a hard day at work is a lot to ask of teachers.
- Facilitators were very supportive of teachers and always addressed teachers' problems. Presenters did a great job of making the program easy to understand
- R found the teachers very informed and passionate yet still found class somewhat boring. R does not enjoy group work and found there was too much of this, as well as too much homework.
- R says the teacher is probably great in the classroom, though R felt no connection with him
- R says there was a good mix of teachers in the class. The instructor was more like a facilitator because everyone worked as a group. R *really* liked the teacher a lot. He made the class fun and something to look forward to. He had lots of good examples and stories from his own experience.

Facilitator/Observer/Coordinator

- Although we asked about the facilitator, several respondents talked about this project person as the "evaluator". One of those who used this term was very enthusiastic about this person, another was favorable but less strongly so and the third was quite unhappy although it wasn't clear she was remembering the correct person. A fourth did not seem aware that the facilitator role was part of the program.
- Person who observed R in the classroom was great. This facilitator gave ideas for what to change and add to teaching, R did not feel undermined by her presence. Person simply observed while R taught and gave suggestions afterward, and person helped students but not in a way that was intrusive. R thinks the program is

essential as a complete package – course with observer/coordinator visits to classroom

- R did not recall a facilitator/observer coming to R's classroom and denied knowledge that this was part of the course. R bristled at the suggestion of a classroom follow-up and was hostile to the idea of somebody coming into the classroom to observe. When asked if it wouldn't be useful to have somebody from the program see the problems with the skill levels of R's kids, R was not sure and said was never told that would be part of the program.
- R remembers the coordinator coming to classroom. R said it is important for a teacher to be in control of the classroom, but this was not a problem with the coordinator at all. The hand-off between the two was handled well and the presence of the other person was beneficial because it allowed both teachers to attend to students who needed assistance. The material presented by the facilitator was slightly harder than what R presented but was still on the same level. R thinks facilitator/observer is an essential component of the program.
- R is not fond of being observed. R referred to the facilitator as an evaluator. R is unsure whether R remembers the exact person, but does remember someone coming to check in. R is used to being observed because of being in TFA, but R says the facilitator did not come when she was supposed to and didn't schedule visits, so R never received feedback. R remembers getting a few tips from the observer, but they didn't seem that helpful because nothing was communicated very clearly. R thinks the person who came into the classroom was there to watch, not to help. At first, R assumed the facilitator would help, but she never did. R wasn't sure if observer was "out to get you or what."
- R says it was helpful to have this person come because it induces teachers to implement what they're learning right away. Otherwise it would take longer because people are busy and might not prioritize incorporating new strategies into teaching. R did not feel undermined by this person's presence. The facilitator was helpful because that person helped out in the classroom and provided reassurance that R implemented techniques properly.

Why R dropped course

- Financial. R got into a car accident and had to pay for the car. R says the course was pay-as-you-go, and R forgot how much it would cost. [It was the interviewer's understanding that tuition was paid – when asked about this, R added being unsure whether R would have continued attending with a scholarship because the loss of R's car made transportation an issue.] R might have continued going if R had not had issues with car, but would not have continued going no matter what given the status of R's car. Definitely not interested in continuing if courses were on Saturdays. R thought the program was a good idea, and R liked the teacher as well as what they were learning. Thus, R would have continued if hadn't had "own little personal problems."
- Course was not set up to address the needs of R's students, so it was not useful to R. R saw the course as having no value for R's situation. R's students were starting much more basic than some average or theoretical kids of same age. R's students had a range of issues, so R could not isolate math. Transportation and

logistics were factors, but the main issue was the lack of fit with R's students needs, particularly the fundamental lack of reading ability.
- R dropped course because of health problems. R had high blood pressure and was instructed by doctor to take it easy, meaning to cut back on activities across the board. R hesitated to discuss this further.
- R was very stressed out and very busy at the time as a result of taking certification classes. When R had to add another certification course, R decided to drop the program. R was almost a full-time student, in addition to being a teacher. R simply didn't have the time and energy for the program. R was also doing an after-school hour and had a long commute to and from home. R says that "in the end, there were more reasons not to do it than to do it."
- R felt very lost with the material presented and felt alone in this feeling. The material was too difficult, but R didn't think anyone else had this trouble. R was not a math teacher and felt the level on which the class was operating was far more advanced than R anticipated.
- R was studying for National Boards and the work overlapped with the course. R couldn't keep up with all the work because it was simply too much. The boards were so much work that they took up all R's time.

When Might R Enroll in Course Again/Motivation for Others
- R would enroll if R were going to teach math again. At R's school, teachers do not know from year to year what grade and/or subject they will be teaching ahead of time and teachers do not have a choice.
- R said they should emphasize the course gives new ideas and to be clear that workload was manageable. R is retired so would not personally enroll in course again, but would recommend it to others. Thought program also generated excitement among students because teachers sometimes told students that they too were in a class and shared what they learned with the students.
- If R had nothing else to do, R might have finished the program, but only because of a sense of obligation – out of a desire to keep the commitment. R asks what the benefits of the course were [to the teacher], specifically asking if there was a math endorsement at the end. With a math endorsement, the course might be worthwhile
- R would enroll in a Medill or Sesame program because these are known as having an excellent reputation for helping teachers by providing them with an incremental process of learning advanced math.

Anything to improve program
- No suggestions, program was fine
- If course gave supporting skills for students they need to learn math, such as basic reading, in addition to materials that would work across a varied set of skills within classrooms and in large classes. Program would need to focus on ISAT "strands in math" at the algebra strand and at students' reading scores, then gear the course to strategies for teaching those children. Focus on the "Everyday Math" curriculum. Make classes more interesting. Align course so it matches up with when teachers are teaching algebra rather than having it begin with the

beginning of the school year. Could organize course at clusters of schools near one another to cut down on travel time and to better tailor program to needs of students

- R wishes there were more classes like that. R liked the ways teachings were integrated with the curriculum, which facilitated the learning process. It also generated excitement with R's students. R found it very helpful that students had to explain in words, step by step what they did. R also found things to bring into the classroom from the program.
- R says making the program shorter would help. It is not entirely clear whether R means the hours of meeting time or the duration of the course over time, but R says that teachers are more likely to enroll in a course that takes less time because it's more convenient. R says less homework/reading would help, as well as less group work.
- R suggests giving a more detailed description of what the course is about beforehand, discussing the larger goals of the program and listing prerequisites. R thinks that some college algebra training should be a prerequisite for the course because R believes it was overwhelming because of R's lack of this training.
- In place of student surveys, R suggests having a group discussion and/or discussion in small groups to hear what kids were actually thinking.