

Illinois Math and Science Academy

From the Selected Works of Steven R Rogg

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MAPS Study Final Report for the Program “Museums and Public Schools” on behalf of Museums In the Park and Chicago Public Schools

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MAPS STUDY FINAL REPORT
for the program
MUSEUMS AND PUBLIC SCHOOLS
on behalf of
MUSEUMS IN THE PARK / CHICAGO PUBLIC SCHOOLS

M U S E U M S A N D P U B L I C S C H O O L S

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MAPS STUDY FINAL REPORT

for the program
MUSEUMS AND PUBLIC SCHOOLS
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1 Executive Summary

The inaugural year of the Museums and Public Schools (MAPS) initiative was both eventful and progressive. Much of the work of the year was necessarily about organizational development, especially with respect to the definition of roles and relationships among and between representatives of its partners: Chicago Public Schools (CPS), Museums in the Park (MIP), and each of the nine MIP member museums.

Clearly, any one of the partners independently exhibit considerable organizational complexity. MAPS, as a partnership and organization in its own right, is creating itself at the intersection of its partner organizations where interests and passions are shared. Primarily, this domain of mutuality originates in the potential of Chicago's great museums to augment the professional education of CPS teachers and to provide conceptually-, culturally-, and pedagogically rich curriculum materials and experiences that promote student engagement and learning.

Having noted the structural complexity of the MAPS initiative, it is necessary to state that the MAPS Study was, by agreement, not designed to view the initiative from this perspective. Instead, the Study was to describe this initial year from the perspective of the participants' experience of MAPS.

For our purposes, the category "participant" applies to both the CPS teachers served by MAPS and the Museum Educators who worked most directly with teachers. This was seen as "ground zero", the most fundamental intersection of the museum's resources and agents of Chicago Public Schools. Also, while there is great interest in examining student outcomes attributable to MAPS, the consensus of the MAPS Evaluation Committee was that this would not be a realistic objective for the first year of the Study.

Teachers and Museum Educators alike experienced MAPS primarily through two platforms: the MAPS workshops (events) and the MAPS curriculum units (materials). For this reason, the MAPS Study was designed to collect information at each event and upon the completion of teachers' implementation of the MAPS Units.

The study applied a mixed-methods descriptive design. This incorporated a combination of self-report questionnaires, structured observation of workshop sessions, and a facilitated "reflective practice" workshop¹ which provided for an interactive expression and organization of participants' summative impressions of their experience(s) with MAPS.

Study activities and instruments were designed to address a set of ten guiding questions. These questions focus on two types of influences: the MAPS initiative as an *intervention* intended to benefit teacher participants, and the *interactions* between CPS teachers and museum educators.

¹ This "MAPS Wrap Up Event" replaced focus group sessions planned in the original Study design.

Drawn from the guiding questions, key findings of the study include:

- ◆ Teachers unanimously welcomed and expressed great appreciation for the assistance and resources that the MAPS initiative provided. The most frequently reported² professional benefits of participation in MAPS included, in descending order: (1) access to resources, (2) relevancy to the classroom, (3) the teacher's own learning, (4) professional collegiality, (5) teacher and student motivation and interest, (6) hands-on activities, and (7) new ideas.
- ◆ Feedback from teachers about their impressions of the MAPS workshops were consistently very positive. A high esteem for Museum Educators was also noted.
- ◆ Teachers overwhelmingly report increased familiarity with the museums, their education programs, and resources applicable to their classroom. Many report that they intend to include the museums and museum resources next year.
- ◆ Of the 84 teachers who participated in MAPS workshops, eighteen (21%) reported implementation of the curriculum units this school year. Eleven (13%) reported bringing students to the museums. Others say they intend to use the units next year.
- ◆ Those teachers who reported implementing the units this year provided an average of 14 hours of instruction, typically spanning 12 school days. They tend to modify the materials to suit students' needs, reporting an average of 8 hours preparation time. They also tended to have favorable opinions of these materials. According to these teachers, for example, students' respond to the units with high levels of interest and motivation.
- ◆ A need for more timely and effective communication was the most requested improvement in the MAPS initiative. Teachers also tended to express concerns about "timing" — that MAPS events and the implementation of curricular units should avoid conflicts with other demands such as student testing, report card due dates, and other professional development requirements.

The MAPS initiative did not accomplish all that it had planned for this initial year. It did not develop as many curricular units as it had intended, nor were the completed curricula prepared within the anticipated timeframe. The initiative did not involve the number of participants stated in the original design, nor did it engage these participants to the extent originally expected. It was, in consequence, a year for development and testing. Yet, results from this study of participants' experiences lead to the conclusion that this development and testing was both necessary and worthwhile. **Perhaps the most significant finding is the strong belief among participants in the viability of the MAPS concept.** There is clear appreciation among these teachers for the human, material, and curricular support that the museums can provide. And finally, there is clear evidence suggesting the *potential* of the MAPS initiative to advance as envisioned in the recent statement of guiding principles developed by the new curriculum development team:

(MAPS) seeks to be a collaborative, child-centered, teacher-focused, integrative and innovative curriculum-based initiative designed to create lifelong learners. It is directed toward systemic reform developed by mutually respectful partners with a shared vision and a sense of unity. Teachers and students will utilize museum resources as an integral and meaningful component of teaching and learning. They will have access to advanced, cutting-edge materials which stimulate curiosity, inventiveness and creativity, are standards-based, and fun. MAPS will support and empower teachers, students, and parents.

² These are categories derived from analysis of free response items.

2 Overview of the MAPS Initiative

The MAPS initiative is described in its original proposal in the following way:

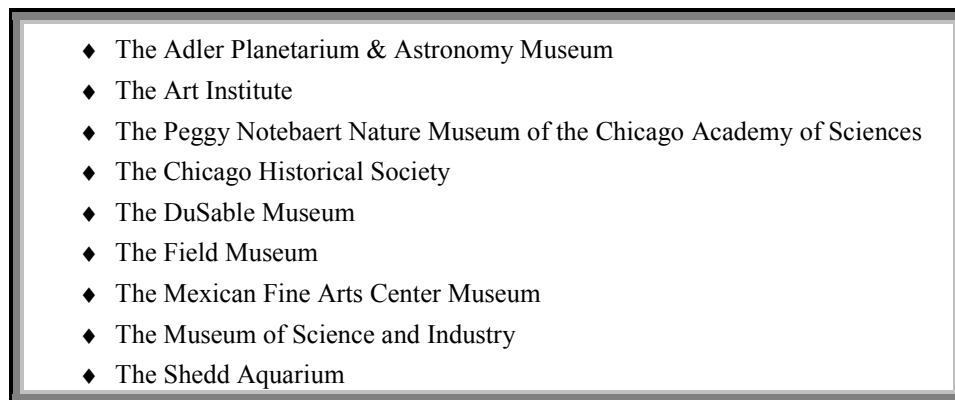
Guided by the Chicago and Illinois academic standards, (MAPS) ...will, over time, make museum resources a creative and integral part of classroom learning and teaching. In so doing, this partnership will enhance teacher knowledge and skills, enrich student educational experiences and advance the educational attainment of all children in Chicago's public schools. In short, this collaboration is an investment in Chicago's future.³

In a subsequent memorandum⁴, it is further described as:

Museums and Public Schools (MAPS) is an initiative developed jointly by the Chicago Public Schools and Museums in the Park. Designed to encourage new teachers to use museum resources more effectively, it brings museum educators together with experienced teachers to develop curriculum units for grades three through six. Both the Chicago Public Schools and the museums have provided funding for the project. Current plans call for implementation during the 1999/2000 school year and extension through the following school year.

The memorandum lists the intended features of the MAPS initiative. It describes MAPS as involving 200 new CPS teachers of grades three through six, their mentor teachers, and museum educators from each of the museums (see Figure 1).

Figure 1: Museums in the Park Institutions

- 
- ◆ The Adler Planetarium & Astronomy Museum
 - ◆ The Art Institute
 - ◆ The Peggy Notebaert Nature Museum of the Chicago Academy of Sciences
 - ◆ The Chicago Historical Society
 - ◆ The DuSable Museum
 - ◆ The Field Museum
 - ◆ The Mexican Fine Arts Center Museum
 - ◆ The Museum of Science and Industry
 - ◆ The Shedd Aquarium

During the summer of 1999, teams of mentor teachers and museum educators were to develop two curriculum modules⁵ at each grade level. Activities of the year were planned to support CPS teachers in the use of these modules and relevant museum resources.

³ Quoted from the preamble of the document: New Teacher Initiative (March 25, 1999). Museums in the Park / Chicago Public Schools.

⁴ Memorandum from Patty McNamara of the Adler Planetarium, (facsimile dated August 2, 1999), to Michael Palmisano of IMSA.

⁵ At an August 8, 1999 MAPS Study design meeting, Dr. Carol Adams, MAPS Project Manager, noted that each module was to contain activities for one to five days of instruction. The modules were expected to be in final stages of development at the time of the initiation of the MAPS Study.

Therefore, MAPS was seen as perhaps most significant as an opportunity for viable collaboration of the Chicago Public Schools (CPS) and the Museums in the Park. The effort was founded on the expectation that the museums can be a powerful curricular resource for teachers and their students. Toward this end, teachers were to be provided curriculum modules and professional development opportunities specifically designed to correlate with the CPS academic standards and Illinois Learning Standards (ISBE, 1997) through the integrative utilization of museum resources.

Individuals targeted for this intervention were to be those teachers of grades three through six who are entering their second year of service to Chicago Public Schools; museum educators contributing to MAPS activities; and those teachers participating in curriculum module development. It was anticipated that the second-year Teacher-Participants would benefit from having the curriculum modules and the museums themselves as teaching/learning resources. The museum educators from each of the nine Museums in the Park institutions and the mentor teachers who participate in curriculum module design teams were expected to benefit from the experiences associated with the design of the modules, and from opportunities to interact with the CPS teachers during MAPS program sessions and museum visits.

3 Introduction to the MAPS Study

During the initial design of the MAPS Initiative, its Steering Committee committed to establishing an evaluation agenda. The MAPS Evaluation Committee was convened to develop and oversee this work and determined to contract for external evaluation services.

After two design meetings resulting in the drafting of a Plan of Work, a contract was awarded to The Center for the Advancement and Renewal of Learning and

This initial year of MAPS would not be about the implementation of an extant program model. It was to be experimental in nature.

Teaching in Mathematics Science and Technology (Center@IMSA) of the Illinois Mathematics and Science Academy (IMSA).

Early in the design process, it was understood by the Center@IMSA research team and the MAPS Evaluation Committee that traditional program evaluation would not fit the circumstances of the MAPS initiative. This initial year of MAPS would not be about the implementation of an extant program model. It was to be experimental in nature. Therefore, although the oversight group retained the name “Evaluation Committee”, this work was entitled “The MAPS Study” to reflect its more exploratory, rather than evaluative, nature.

Some confusion may result if the MAPS Study is thought to have been about program evaluation. If this were the case, however, the work and this report would have been vastly different. For example, results would have been benchmarked *primarily* against original program objectives (i.e., numbers of teachers served). Instead, the Study is framed against ten guiding questions. These questions were crafted to promote broadly shared understanding about this year’s trial and future viability. As a result, the MAPS Study is best understood as research in progress. Therefore, we strongly suggest that methods, these early findings, and the “baseline data” taken this year inform and integrate into the design (as appropriate) of a research agenda for MAPS 2000-2001.

The MAPS Study was formative, summative, and foundational—it provided “just-in-time” feedback to guide the ongoing evolution of the collaboration, reports documenting lessons learned from the first year’s implementation, and baseline data for next year. The initial focus was on participant experiences. Performances of program administrators, managers, instructors, or students were not assessed directly but only as reflected in participants’ experiences of the MAPS program. Finally, a “mixed-methods” approach was used in order to provide an “array of credible evidence” (i.e., avoiding sole reliance on self-report survey data) with triangulation, as necessary, to provide confirmatory evidence for the more significant questions.

4 Design of the MAPS Study

A description of the design of the MAPS Study follows. This includes the context of the study, its purpose and primary questions, the intended and realized samples, study methods, and a comparison of the intended and realized activity timelines.

4.1 CONTEXT

The MAPS initiative was managed by Dr. Carol Adams with responsibility for project evaluation given to an Evaluation Committee (see Figure 2). Representatives of the Illinois Mathematics and Science Academy met with representatives of this committee on two occasions: August 4 and August 16, 1999. At these meetings, recent developments of the MAPS project and ideas for meaningful evaluation of the project were discussed. It was determined that the Center@IMSA would provide services as described in the Methods section (4) of the Plan of Work document (Rogg, 1999)⁶ on behalf of, and overseen by the Evaluation Committee. Authority for the design and implementation of the study resided with this Committee and all reports have been made to the same.

Figure 2: Evaluation Committee Members

Carol Adams <i>Ad Hoc member</i>	Project Manager, Museums and Public Schools
Jacqueline Atkins	Director, Museums in the Park
Charles Branham	Senior Historian, The DuSable Museum
Clifton Burgess	Director, Chicago Systemic Initiative, Chicago Public Schools
Ana Espinosa	Director, Department of Curriculum Chicago Public Schools
Paul Knappenberger	President, The Adler Planetarium & Astronomy Museum
Patty McNamara, Chairperson	Director of Evaluation and Exhibits, The Adler Planetarium and Astronomy Museum
Tonikiaa Orange	Program Manager, Structured Curriculum Project, Chicago Public Schools
Steven Rogg <i>Ad Hoc member</i>	Research and Professional Development Coordinator Illinois Mathematics and Science Academy

4.2 PURPOSE AND PRIMARY QUESTIONS

The general purpose of the MAPS Study is to provide the Evaluation Committee with viable formative “just in time” data that informs the implementation and evolution of MAPS; to provide a summative perspective of the first year activities that inform future plans; and to provide baseline data

for ongoing evaluation of the initiative should it continue as planned beyond this first year. Toward these ends, the Study was targeted on results from two perspectives: (1) teacher-participant intervention outcomes, and (2) MIP↔CPS interaction outcomes. These perspectives are explained in the following text along with their associated Study Questions.

4.2.1 Intervention Outcomes

As an intervention, the MAPS initiative is designed to support new teachers in the implementation of the curriculum modules in their classrooms. As a result, it was anticipated that these teachers should be motivated to increase their utilization of museum resources for instruction. If this were not found to be the case, then the viability of the MAPS initiative as a component of the CPS education system would be in question. The anticipated teacher outcomes included the increase of:

- ◆ professional satisfaction of second year CPS teachers of grades three through six;
- ◆ familiarity of these teachers with museum resources; and,
- ◆ sustained use of museum resources in the teachers' enacted curriculum.

Study questions that follow from these outcomes include:

- 1) In what ways do teacher-participants view their participation in MAPS as being of professional importance? (To what extent do they recognize and value the alignment to academic standards? Do they recognize and value the integrative nature of the modules and museum resources?)
- 2) What evidence can we provide that teacher-participants' familiarity with museum resources has changed as a result of their participation in MAPS?
- 3) In what ways and to what extent do teacher-participants report implementing the MAPS modules in their enacted curriculum?
- 4) What was the experience of implementing the curriculum like for them? (Was it easy or difficult? What were the challenges? What went well?)
- 5) What is their level of commitment to continue using these materials?
- 6) What is their level of commitment to continue using museum resources?
- 7) What support do teachers perceive that they need to continue using these materials and museum resources?

⁶ See in particular the recorded minutes of the August 16, 1999 meeting entitled: "MAPS Project: Museums in the Park with Chicago Public Schools".

4.2.2 Interaction Outcomes

There are two primary outcomes that were anticipated to result from the interactions between CPS teachers and museum educators. These were:

- ◆ Curriculum Modules aligned with the CPS Academic Standards and the Illinois Learning Standards through effective integration of museum resources in the curriculum. Design teams of CPS mentor teachers and museum educators have designed and developed these modules.
- ◆ Realignment of the work of the museum educators in ways that are of direct benefit to CPS teachers and their students.

The Study Questions that follow from these interaction outcomes include:

- 1) How did the mentor teachers and museum educators who participated in the development of the curriculum modules perceive that experience? (In what ways was the experience significant? How might it be improved next time?)
- 2) To what extent do the curriculum modules meet the intended design? (Are they of high quality? Are they aligned with the academic standards? Are they integrative? Do they effectively utilize museum resources? Are they accurate and correct?)
- 3) In what ways have the work habits and priorities of the museum educators changed as a result of the MAPS initiative? How do museum educators see their role with respect to the Chicago Public Schools, its teachers, and its students?

4.2.3 Guiding Questions

At this point, we list the full set the MAPS Study Guiding Questions for the reader's convenience. In this form, they are slightly rephrased so that they can "stand alone" as necessary. These questions were used to focus the design of instruments, protocol, and the summative MAPS Wrap Up Event. References to them will be made throughout the remainder of this document.

Figure 3: MAPS Study Guiding Questions

1. In what ways do teacher-participants view their participation in MAPS as being of professional importance?
2. What evidence can we provide that teacher-participants' familiarity with museum resources has changed as a result of their participation in MAPS?
3. In what ways and to what extent do teacher-participants report implementing the MAPS modules?
4. What was the experience of implementing the curriculum like for them?
5. What is the teacher-participants' commitment to continue using these materials?
6. What is the teacher-participants' commitment to continue using museum resources?
7. What support do teachers perceive that they need to continue using these materials and museum resources?
8. How did the mentor teachers and museum educators who participated in the development of the curriculum modules perceive that experience?
9. To what extent do the curriculum modules meet the design specifications?
10. In what ways have the work habits and priorities of the museum educators changed as a result of MAPS?

4.3 SAMPLE

The sample for the MAPS Study was expected to be composed of all direct participants. This is illustrated in section 4.4 (Methods), below. There were also sub-samples designed according to the methods used to address each of the specific study questions. Such subgroups are also described in the Methods section (4.4), below.

Table 1: Anticipated and Realized Sample.

Category	Notes	Intended Count	Realized Count
Museum Educators	Approximately two anticipated from each of the nine MIP museums.	18	18
Design Team Teachers	Experienced teachers who contributed in the development of the modules.	30	0
Mentor Teachers	One mentor teacher for each two or three teacher participants	80	0
Teacher-Participants	Anticipated number of 2 nd year teachers of grades 3-6 who will participate in MAPS.	150	84

There are notable differences between the intended and realized samples. The principal factors contributing to differences for the Curriculum Design Team, Mentor Teachers, and Teacher Participants (a.k.a. MAPS Teachers) are explained below.

4.3.1 Design Team Teachers

The members of the summer 1999 Curriculum Design Team were to have been invited to contribute in a focus group in order to inform future materials development. This plan was abandoned, although not until late into the program year. At least two factors contributed to the postponement and eventual cancellation of this plan. First, the actual development of the materials progressed in an unforeseen way. Materials prepared by the Design Teams were not considered to be in a state of sufficient quality as required for the MAPS Kick Off Event (see Table 2: MAPS Study Timeline). Additional curriculum developers were enlisted by MAPS and CPS leadership, and the development process continued through Christmas break. Just in advance of the first MAPS workshop, the materials were declared to be satisfactory as “experimental”. Because considerable development took place beyond the original Design Team, and with additional revision expected, a focus group with the original team seemed no longer relevant.

The second factor leading to cancellation of the focus group methodology was simply the time lapsed between the original work (Summer, 1999) and the first opportunity to schedule a focus group event

(Spring, 2000). Some original writers remained active in MAPS, creating a concern that a focus group might interfere with programming. A solution considered was to conduct the event at a museum site during an evening. MAPS leadership, by this time, had already responded to what were understood to be the primary concerns of the original writers. There was, therefore, ample suggestion that the focus group was a moot point. The Evaluation Committee agreed to abandon this activity. There would be more to gain from listening to active teacher participants and museum educators.

4.3.2 Mentor Teachers

The reason that Mentor Teachers were not included in the sample is more straightforward. Immediately after the MAPS Kick Off event, the MAPS Steering Committee determined to focus priority on curriculum development and the MAPS Workshops. Plans to include Mentor Teachers in program activities were thus suspended. Effectively, the Mentor Teachers were not participants in MAPS and therefore, unavailable for the sample.

4.3.3 Teacher Participants and Museum Educators

The factors contributing to the reduced number of teacher participants are multiple and best understood from the teachers' voice present in this Study. The results section (see page 16) provides explanations of these factors.

4.4 METHODS

In general, the MAPS Study employed what is called a mixed-method evaluation strategy (Frechtling & Sharpe, 1997). Questionnaires were used to capture participants' perceptions during MAPS meetings and to produce baseline data. Assessment/feedback instruments were packaged with the curriculum modules. Break-out groups were utilized in conjunction with the MAPS meetings to provide formative information and feedback, triangulation of evidence, and confirmation of survey instrument responses (Cooley & Klopfer, 1963; ERIC Clearinghouse on Assessment and Evaluation, 1995; Frechtling, 1995; Guba & Lincoln, 1989; Van Maanen, 1988).

The Study was also characterized as an emergent design. In short, some key decisions about the conduct of the Study were, as anticipated, made "in flight". For example, items that appeared on the questionnaires for each workshop were potentially influenced by experiences of the previous event. Likewise, the decision to create the May 31 MAPS Wrap Up Event, rather than to conduct telephone interviews or site-based interviews, was a response to findings of the workshop sessions. This flexibility was particularly important in order to be maximally responsive to the data and is especially appropriate given that the MAPS program was entirely new and essentially experimental.

While statistical hypothesis testing was not relevant to this study, the validity and authenticity (Guba & Lincoln, 1989) of findings were tested by way of member checking with participants and program administrators. After each event, results were shared with the Evaluation Committee (composed of members of MAPS administration and experts in program evaluation) and with planning teams where possible. Indeed, the MAPS Wrap Up Event was a very significant occasion for member checking. Final results and conclusions found in this report were presented and discussed at two meetings, one with the Steering Committee and one with the Evaluation Committee and Museum Educators. In each of these meetings, there was strong general agreement (no serious objections were voiced) that findings are credible and authentic relative to participants' experiences of MAPS.

4.4.1 Data Source

Most of the evidence needed to support a response to each of these questions can be satisfactorily obtained via self-report questionnaire. For example, teacher-participants were readily able to respond to the first question directly, as in: “Describe the ways in which your participation in MAPS is important to you as a professional teacher.” We were interested in learning more about the MAPS program, however, than might be so obvious. Therefore, we designed opportunities to assess the participants experience through not only written but also (individual) oral and group dialogic approaches. This allowed individuals to express their perspectives of the MAPS experience in more than just a single media. Moreover, it allowed the research team and members of the Evaluation Committee to triangulate this information — in order to determine its validity, authenticity, transferability, and likelihood of stability over time.

Finally, historical data documenting past school visits to the museums was seen by the Evaluation Committee to have potential importance. For example, historical data might be useful for documenting any impact that the MAPS program might have on student and family use of the museum facilities beyond the school day. A possibility considered was to provide students of teacher-participants’ with museum passes. The rate of return of the passes would be recorded by museum staff. In the design of the Study, this was understood as being conditional on “the capability of the museums to provide this information“. These passes might also have been used as an incentive for teachers to return feedback forms packaged with the curriculum modules. This approach, however, was not implemented because to do so would have required more planning and time to prepare for implementation than was possible. This may be worth reconsideration in subsequent study.

An alternative approach that was tried was to provide each teacher with a museum pass and a MAPS Passport. Teachers were to have their MAPS Passports stamped by museum personnel upon each visit

to the museums. Pages were included for “Evaluation” which were to be stamped for each MAPS Study contribution, i.e., return of the Curriculum Feedback Questionnaire. An incentive was to be awarded at the year’s end for complete Passports. Although this strategy was not full implemented⁷, the idea also may be worth consideration in future designs.

4.4.2 Human Subjects

The Evaluation Committee agreed that this study was exempt from Human Subjects compliance review on the grounds that the work was conducted on behalf of the Chicago Public Schools and that all participants are employees of the Chicago Public Schools. Moreover, there were no minors (i.e., students) in this study. Confirmation of exempt status was provided by Cliff Burgess, CPS.

In addition, the Plan of Work underwent review by IMSA’s chair of the HASRC. The HASRC found that the Study qualified for exempt status because: (1) it was conducted in a commonly accepted educational setting involving normal educational practices; and (2) it employed the use of typical educational measures⁸.

In order to assure respondents’ anonymity, all questionnaire responses were returned directly to IMSA. Electronic files containing survey responses do not contain respondents’ names. With the exception of quotations or vignettes stripped of identification, only aggregate (pooled) responses by MAPS program and cohort group are reported. And finally, in all other circumstances individual teacher’s responses bearing personal identification were neither released nor reported to Chicago Public Schools, Museums in the Park, or MIP member museums.

4.4.3 Timeline

The following display (Table 2) provides a summary of the sequence of key events and participants in the same. The timeline is provided in this detail for two main reasons. First, it is expected that this record will be of utility during the design of subsequent research. The second purpose is to illustrate the reality of the emergent design and just-in-time characteristics, which we see as positive attributes of this study. More about the nature of each event is given in the findings section of this report (page 16), which is organized according to the MAPS Study questions and event chronology.

Major program events are identified by text in **bold underline**, planning/reporting meetings are underlined, products are identified by text in *italic*, the individual responsible for the task is noted in (parentheses). Finally, ~~strike through~~ text indicates where plans were changed or cancelled.

⁷ The MAPS Passports had been produced and distributed but stamping them was not implemented.

Table 2: MAPS Study Timeline

Date	Event
August 4, 1999	Evaluation Committee Meeting: Explore Options <ul style="list-style-type: none"> • MAPS Evaluation Committee Members (6) • IMSA Representatives (2)
August 16, 1999	Evaluation Committee Meeting: Key Questions <ul style="list-style-type: none"> • Dr. Carol Adams, MAPS Project Manager • MAPS Evaluation Committee Members (3) • IMSA Representatives (2)
interim	♦ Write MAPS Study Plan of Work discussion draft (Rogg)
September 10, 1999	Evaluation Committee Meeting: Refine Plan <ul style="list-style-type: none"> • MAPS Evaluation Committee Members (4) • Dr. Steven Rogg, IMSA Project Coordinator
October 15, 1999	♦ Complete Plan of Work with budget (Rogg, Schielke)
October 18, 1999	<ul style="list-style-type: none"> • Review <i>Plan of Work</i> and contract (Adams, Atkins, Schielke) • Authorize <i>Plan of Work</i> (Evaluation Committee, Atkins)
interim	<ul style="list-style-type: none"> • Develop <i>Kickoff Feedback Survey</i> (Rogg) • Develop Process Observation Protocol (Rogg)
October 21, 1999	• Deliver <i>Kickoff Feedback Survey</i> for review (Rogg)
October 24, 1999	• Deliver electronic contact data for participant- and mentor teachers, design team members, and set of Modules to Dr. Rogg (Adams)
October 25, 1999	• Deliver certification of human subjects exemption status to Dr. Steven Cordogan of IMSA's Office of Research and Dissemination (Burgess)
October 27, 1999	• Deliver <i>Teacher Questionnaire</i> to Evaluation Committee for Review
October 28, 1999	<ul style="list-style-type: none"> • Return <i>Teacher Questionnaire</i> comments to Dr. Rogg (McNamara) • Finalize <i>Teacher Questionnaire</i> (Rogg)
October 29, 1999	MAPS Grand Kickoff and Orientation Meeting <ul style="list-style-type: none"> • Distribute Curriculum Modules to participants (Adams) • Conduct participant orientation sessions (Museum Educators) • Insure that the <i>Kickoff Feedback Survey</i> is completed by all attending 1st and 2nd year teachers and that <i>Teacher Questionnaire</i> is completed by all attending MAPS teachers. Return all forms to Dr. Rogg. (Adams) • Conduct process observations of orientation sessions (Rogg) • Host a recognition luncheon for the Design Team members (Atkins) • Facilitate discussion on impressions of the design experience during the Design Team Recognition Luncheon (Rogg)
interim	<ul style="list-style-type: none"> • Process <i>Kickoff Feedback Survey</i> (Rogg) • Process <i>Teacher Questionnaire</i> (Rogg)
November 8, 1999	Evaluation Committee Meeting: Member Check <ul style="list-style-type: none"> • Report participant profile derived from the <i>Teacher Questionnaire</i> and impressions from Grand Orientation process observations (Rogg) • Review final plans for MAPS Workshop I (Committee)
interim	• Develop <i>Curriculum Module Feedback</i> questionnaire (Rogg)
December 9, 1999	<ul style="list-style-type: none"> • Deliver <i>Curriculum Module Feedback</i> questionnaire to Dr. Adams for inclusion in the curriculum packages (Rogg) • Assemble <i>Curriculum Modules</i> for distribution (Adams)
December 13, 1999	Team Planning Meeting: Workshop I Design <ul style="list-style-type: none"> • Field Notes (Rogg)

⁸ This letter is on file at the Illinois Mathematics and Science Academy, 1500 West Sullivan Road, Aurora, Illinois, 60506.1000.

Date	Event
January 13, 2000	Evaluation Committee Meeting: Workshop I Design <ul style="list-style-type: none"> • Report on Team Planning Meeting and MAPS status (Adams, Rogg) • Plan for MAPS Workshop I (Committee) Team Planning Meeting: Workshop I Design <ul style="list-style-type: none"> • Field Notes (Rogg)
interim	<ul style="list-style-type: none"> • Develop <i>Workshop I Questionnaire</i> (Rogg)
January 21, 2000	MAPS Workshop I <ul style="list-style-type: none"> • Insure that the <i>Workshop I Feedback Questionnaire</i> is completed by all attending 2nd year teachers. Return all forms to Dr. Rogg. (Adams) • Conduct focus group with random participant sample (Rogg) • Conduct field observations of workshop sessions (Rogg)
interim	<ul style="list-style-type: none"> • Process Workshop I Feedback Questionnaire (Rogg) • Transcribe focus group proceedings & analyze (Meyer)
March 16, 2000	Evaluation Committee Meeting <ul style="list-style-type: none"> • Report on <i>Workshop I Questionnaire</i>, observations, & focus group findings (Rogg) • Review final plans for MAPS Workshop II (Committee)
March 31, 2000	MAPS Workshop II <ul style="list-style-type: none"> • Insure that the <i>Workshop II Questionnaire</i> is completed by all attending 2nd year teachers. Return all forms to Dr. Rogg. (Adams) • Conduct second focus group with random sample⁹ (Rogg) • Conduct process observations of workshop sessions (Rogg)
interim	<ul style="list-style-type: none"> • Conduct individual telephone or site-based¹⁰ interviews with second random sample of 2nd year teacher participants (Rogg, Meyer) • Conduct individual interviews with random sample of principals of 2nd year teacher participants (Rogg, Meyer) • Conduct Focus Group (???) (Adams, Rogg) • Process <i>Workshop II Questionnaire</i> and Observation data (Rogg, Meyer) • Transcribe Focus Group proceedings & analyze (Meyer) ◆ Design & Develop the May 31 MAPS Wrap Up Event (Rogg) • Develop the plan and agenda (Rogg, Micetich, Todnem) • Develop “Mapping MAPS” tool and feedback questionnaires (Rogg) • Develop focus questions based on MAPS Study questions (Rogg)
May 31, 2000	MAPS Workshop III MAPS Wrap Up Event <ul style="list-style-type: none"> • Deadline for Curriculum Module Feedback questionnaires. (Adams) • Insure that the <i>Workshop III Questionnaire</i> is completed by all attending 2nd year teachers. Return all forms to Dr. Rogg. (Adams) • Conduct process observations of workshop sessions (Rogg) ◆ Conduct the MAPS Wrap Up Event per plan (Rogg, Micetich, Todnem)
interim	<ul style="list-style-type: none"> ◆ Process <i>Workshop III Wrap Up Event Questionnaire</i> data (Rogg) ◆ Transcribe interview proceedings notes & analyze (Rogg) ◆ Process <i>Curriculum Module Feedback</i> questionnaires (Rogg). ◆ Write the first draft of the final report (Rogg)
June 23, 2000	<ul style="list-style-type: none"> ◆ Evaluation Committee review of findings (Rogg)
July 27, 2000	<ul style="list-style-type: none"> ◆ Present MAPS Study to CPS and Museum officials (Rogg & EC)

⁹ The same teachers who were selected for the initial focus group were to remain also for this session. The sample was to be maintained not only because it was randomly selected (to randomly select a new group without replacement provides no anticipated benefits other than to give other teachers a chance to experience the focus group—but this is not the purpose of the activity) but mostly because the second session could be used to also assess if there might be changes over time in participants’ views, and any factors contributing to these changes.

¹⁰ The decision to conduct site-based versus phone interviews was to depend upon having a compelling rationale for one over the other. This decision would have been informed by the findings of the focus group.

4.4.4 Instruments

Self-report questionnaires were utilized in the Study to document participants' demographic characteristics, their perceptions of the MAPS program, attitudes related teaching and learning, and teaching practices. A structured observation tool was used by field researchers to document researchers' impressions of MAPS workshops. An overview of the instruments used at each MAPS event is provided in Table 3. The questionnaires are found in Appendix A: Instruments.

Table 3: Overview of MAPS Study instruments

Events	Instruments	Purposes
MAPS Kick Off	MAPS Impressions 991029	<ul style="list-style-type: none"> • Demographics of all participants¹¹ • Impressions of the Kick Off event
	MAPS Teachers v3 991029	<ul style="list-style-type: none"> • Demographics of MAPS participants • Level of formal teaching preparation • Prior teaching experience • Initial perceptions of importance of MAPS • Teaching/Learning beliefs and practices
Workshop I	MAPS Workshop 000121	<ul style="list-style-type: none"> • Museum visit count • Perceptions of importance of MAPS • Perceptions of value of the event
Workshop II	MAPS Workshop 000331d	<ul style="list-style-type: none"> • Museum visit count • Perceptions of importance of MAPS • Perceptions of value of the event • Teaching/Learning beliefs and practices
	Structured Observation Tool	<ul style="list-style-type: none"> • Adequacy of workshop facilities/resources • Instructional content of the workshop • Instructional practices of Museum Educators • MAPS teacher engagement in the workshop
(MAPS Units)	MAPS Unit 000330	<ul style="list-style-type: none"> • Nature of use of the MAPS units • Impressions of unit's value and characteristics
MAPS Wrap Up	Mapping MAPS 000622	• Cumulative participation rates
	MAPS 000531a	• Teaching/Learning beliefs and practices
	MAPS Personal Reflection	• Direct response to MAPS Study Questions

Demographic items used in the questionnaires correspond with the Schools and Staffing Survey and recently revised Federal guidelines (Bare, John, & Knight, 1998; U.S. Department of Education, 1996). Items used to determine participants' impressions of events were selected from a standard set used by the Illinois Mathematics and Science Academy to monitor its outreach programs. The items for the assessment of teachers' impressions of the MAPS curriculum units were co-constructed with MAPS personnel based on the MAPS Study guiding questions and criteria drafted by MAPS to guide the development of the units. Finally, items related to teaching and learning practices were selected from indicators of standards-based education practice (Kahle & Rogg, 1998).

¹¹ The MAPS Kick Off event included CPS teachers in their first year with the district along with teachers of grades three, four, five, or six in their second year -- thus eligible to participate in MAPS.

5 Findings of the MAPS Study

Results are presented as they were derived, from the perspectives of participants. In general, the findings from the vantage of MAPS *events* are presented first, and this followed by impressions of the MAPS *materials* and overall *program* findings.

5.1 MAPS TEACHER PERSPECTIVE

The perspectives of MAPS teachers were obtained primarily from the feedback questionnaires at events, open-ended questions, direct observation of teacher participation during events, and the Wrap Up Event. The latter event was entirely designed to capture and synthesize participants' experiences of MAPS and, as a result, provides a wealth of insight into the summative impressions of participants as well as the degree to which participants were engaged by MAPS. This section begins with an analysis of the question of the extent to which participants were engaged by MAPS.

5.2 MAPS PARTICIPATION TRENDS

The following table (Table 4) is derived from participants' response to the "Mapping Maps" tool designed for the May 31, 2000 MAPS Wrap Up Event. Participants at this event were asked to indicate each activity or event in which they participated. Table 4 presents these frequencies. Note that these counts are a subset of the 87 individuals (57 teachers) who attended the May 31 Wrap Up event¹². Counts include all participants and contributors who were present, not only teachers.

The value of this analysis, however, is that it demonstrates the extent of involvement or engagement of individuals. In particular, one can see that a relatively small number of individuals (who were present that day) engaged in the development, design, and marketing of MAPS. The differential between the counts for MAPS mass events (indicated by bold print) and interim activities is suggestive that most participants were not continuously engaged in MAPS over the period of this trial year. It is seen that teachers had attended the MAPS Kick Off! Event, but were not engaged again until the Workshop I. Indeed, this was the *de-facto* expectation. Teachers, for example, were expected to attend the MAPS workshop and then try using the MAPS materials in the interim. However, materials were not available until Workshop I (January 21, 2000). Notice that approximately half of

¹² Given that there were n=84 teachers who participated in at least one of the previous MAPS workshops, these data represent approximately two thirds of teacher participants. It is reasonable to argue that trends in these data are sufficiently representative of the program although raw counts are modest.

the number of Workshop I/Workshop I Makeup participants¹³ (who were also at the May 31 event) report “Student Immersion in MAPS Unit” during the subsequent interim period.

An alternative way of viewing these data is presented in Figure 4: Activity and Event Participation Trends, which shows that the majority of participants were engaged in fewer than six activities or events. However, in the intended MAPS design, teachers would have attended three workshops and in the interim periods, they would have (1) prepared to teach the units, (2) engaged students in the unit, (3) visited the museum(s), and (4) extended the unit with students. With three workshops (one event each) and two interim periods (four events each as listed above), the teachers might have been engaged in as many as eleven activities or events. These data show that this was not achieved.

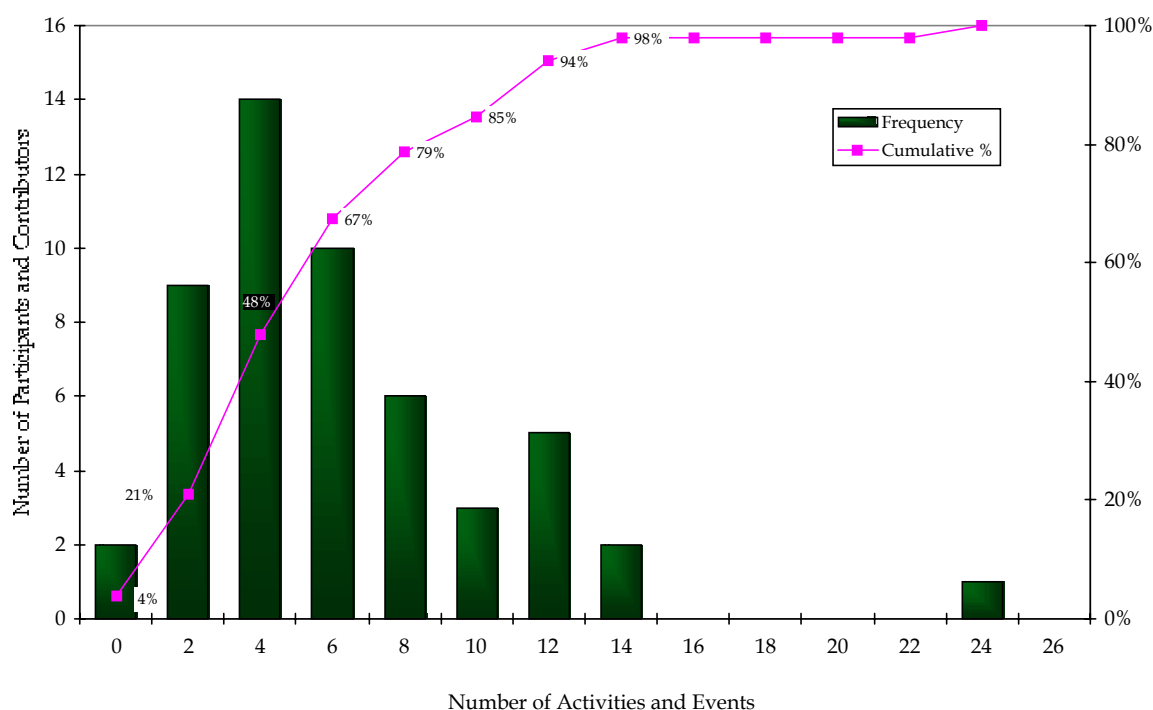
Table 4: Participation in Formal and Informal Activities and Events

Activity or Event	Count
MAPS Concept/Model Development	3
MAPS Program Design & Planning	3
Resource Development	1
Curriculum Design & Development	6
Marketing & Teacher Recruitment	1
MAPS Kick Off! Event	40
Program Management	2
Resource Development	1
Curriculum Development	5
Marketing & Communication	1
Workshop I Design/Planning	4
MAPS Study Development	2
Other	1
Workshop I	38
Workshop I Make-Up	7
Prepare to Teach Maps Unit	25
Student Immersion in MAPS Unit	20
Student Museum Visit(s)	11
Student Extension of MAPS Unit	6
MAPS Curriculum Development	9
Workshop II Design/Planning	6
MAPS Curriculum Development	7
MAPS Study Development	3
Workshop II	34
Prepare To Teach MAPS Unit	17
Student Immersion in MAPS Unit	12
Student Museum Visit(s)	12
Student Extension of MAPS Unit	6
MAPS Curriculum Development	5
MAPS Wrap-up Design/Planning	3
MAPS Curriculum Development	3
MAPS Study Development	3

¹³ The count (38 + 7 = 45) includes Museum Educators. Subtracting the number responding for “Workshop I Design/Planning” should adjust for this (45 – 4 = 41) and 20/41 = 49%.

These trends suggest that a goal for MAPS in the future should be to engage more participants, to engage them earlier, and to maintain their engagement over the program year. As the reader will see, other data reported in this section affirm these conclusions.

Figure 4: Activity and Event Participation Trends



It is worth noting that Figure 4 identifies the participation distribution for teachers (centered at count=4) and the distribution for Museum Educators and MAPS administrators (centered at count=12). One individual, the MAPS program manager, shows the upper limit by reporting participation in 24 of the listed activities and events. And, attendance data (Table 5) show that the majority of participants attended only one of the four "workshop" events¹⁴. The MAPS response to these participation trends are found in section 6, beginning on page 48 of this report.

Table 5: Frequencies from MAPS Workshop Attendance Records

Number of Workshops Attended	Participation Count
1	57
2	29
3	33
Total	119

¹⁴ This represents the Kick Off, two Workshops, and the Wrap-Up event. A total of 84 teachers participated in one or more events prior to the final Wrap Up.

5.3 MAPS EVENTS

The most significant events of the year were the MAPS Kick Off Event, two MAPS Workshops and the MAPS Wrap Up Event. Some of the more significant findings from each of these events are presented here, in order of chronology.

5.3.1 Kick Off Event

The first event, the Kick Off, was held on October 29, 1999 in the Grand Hall of the Field Museum. The event combined the orientation to MAPS of those teachers targeted for this initiative (teachers of grades 3, 4, 5, or 6 who were also in their second year of teaching at Chicago Public Schools) with the general orientation of teachers new to Chicago Public Schools. The event was conducted on a grand scale, with an impressive display of musical entertainment, refreshments, and speeches by CPS and Museum leaders, celebrities (including video messages from Bill Cosby and Oprah Winfrey) and Mayor Daley.

For the purposes of the MAPS Study, two surveys were created. The first is a general "impressions" survey distributed to all participants at this event. The second was specific for the MAPS teacher group and was designed to obtain demographic information along with baseline data on these teachers' perception of their classroom teaching practices (see Appendix A). In addition, the MAPS-specific session, held in the afternoon, was observed by the researcher. Together, these data provide a sense of the landscape in which the MAPS initiative was to operate over the program year.

Figure 5: Teacher Ethnicity Distribution (n=577)

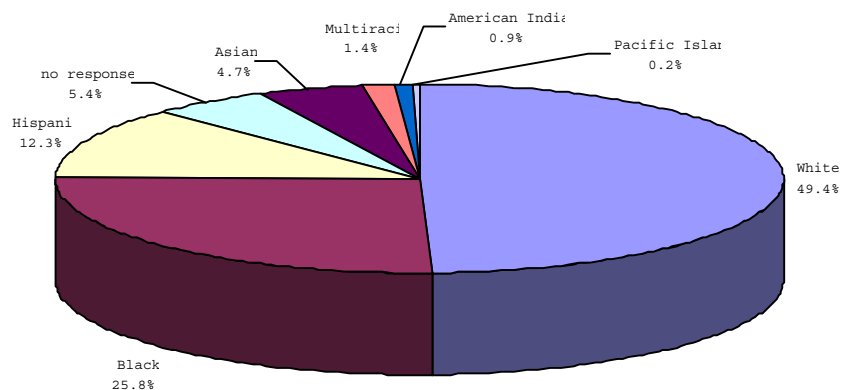


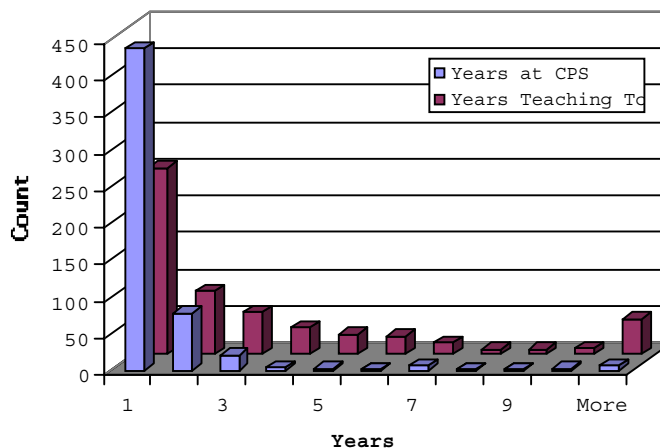
Figure 5 shows the distribution of self-identified ethnicity among the n=577 participants who returned impressions surveys¹⁵ at the conclusion of the Kick Off Event. By head count, 174 individuals attended the MAPS-specific afternoon breakout session.

The following table (Table 6) provides the counts for sex and ethnicity distributions at this event. The potential value of tracking these data may be that in subsequent years an assessment can be made about the utility of the MAPS initiative in retaining teachers, especially those underrepresented in the school system.¹⁶

Table 6: Kick Off Event Sex and Ethnicity Distributions

Teacher's Sex	Count	Percent	Ethnicity	Count	Percent
Female	436	81.80%	White	285	49.39%
Male	97	18.20%	Black	149	25.82%
			Hispanic	71	12.31%
			no response	31	5.37%
			Asian	27	4.68%
			Multiracial	8	1.39%
			American Indian	5	0.87%
			Pacific Islander	1	0.17%
Total	533	100.00%	Total	577	100.00%

Figure 6: Teacher Professional Experience Distribution



¹⁵ There was considerable confusion near the end of this event with many teachers wanting to beat rush hour traffic. Although teachers were expected to sign out and were not to be given a "goody bag" without completing this survey, it was observed that personnel at check-out tables were not maintaining these policies. Others did not receive the survey due to a shortage of teachers' binders.

¹⁶ Demographic distributions for this years' MAPS participants are influenced by the variability in participation (see MAPS Participation Trends). Comparison of the *current* MAPS group with the Kick Off Event sample, or to CPS demographics overall, would be too unstable to interpret.

The distribution of teachers self-reported professional experience is illustrated in Figure 6 and Table 7. The items were worded: "For how many years have you been teaching for Chicago Public Schools (include this year)?" and "For how many years have you been teaching in total (include this year)?"

The distribution reflects the targeted groups of teachers in their first year at CPS, and MAPS teachers (in their second year). It is interesting to see, for example, that of the group of 437 teachers in their first year at CPS, 42% have prior teaching experience. Therefore, the group tended to be first year teachers, although with a significant number of teachers who were not new to teaching just new to CPS. The distribution also affirms that even those teachers who were not in their first year of teaching did tend to be newer to the profession.

Table 7: Teaching Experience by the Numbers

Years Teaching at CPS		Years Teaching Total	
<i>Years</i>	<i>Frequency</i>	<i>Years</i>	<i>Frequency</i>
1	437	1	253
2	78	2	85
3	21	3	57
4	4	4	36
5	3	5	27
6	1	6	24
7	6	7	15
8	1	8	6
9	1	9	6
10	2	10	7
More	7	More	48

Participants' impressions of the Kick Off event (Figure 7) tended to be positive, although not unanimously so (Grand Mean = 1.997, Scale Alpha = 0.93). Satisfaction with the events of the day tended to decrease, in general, as the day progressed from the "Opening Ceremony" to "Morning Sessions" to "Afternoon Sessions" and finally to the "Reception and Closing". Comments from participants indicated that any dissatisfaction tended to arise from logistical matters including: difficulty parking; waiting at registration; running out of materials¹⁷; and that the event occurred during a grading period. There seemed to be general satisfaction with the substance of the day (see Figure 8).

¹⁷ Apparently, participation was greater than anticipated.

Figure 7: Impressions of the Kick Off Event

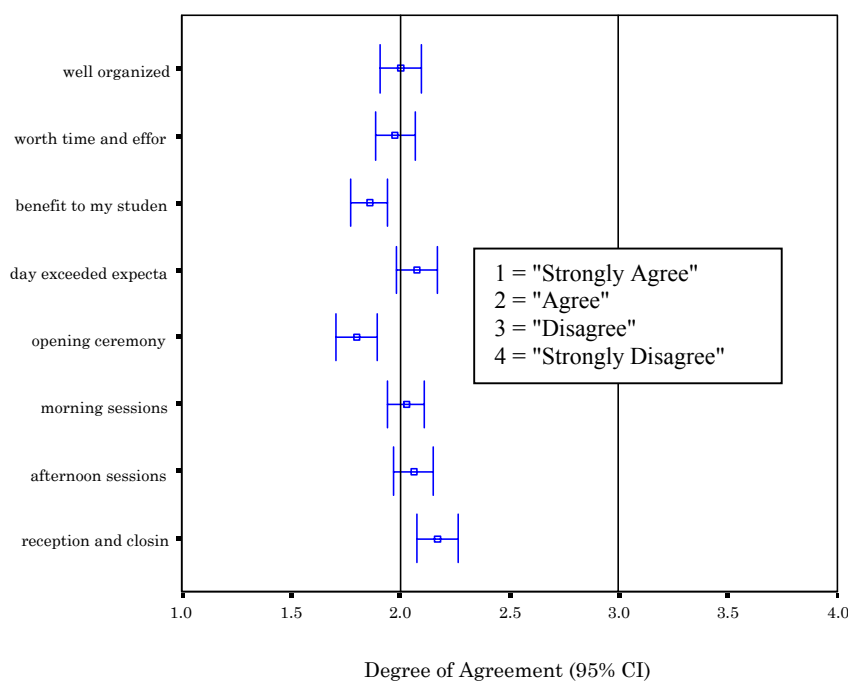


Table 8: Frequency Distributions of Impressions of the Kick Off Event

Organization		Worthwhile		Student Benefit		Expectations	
Rank	Frequency	Rank	Frequency	Rank	Frequency	Rank	Frequency
1	242	1	224	1	253	1	206
2	203	2	243	2	233	2	214
3	75	3	57	3	55	3	96
4	57	4	53	4	36	4	61

Figure 8: Summary Impressions of the MAPS Kick Off Event

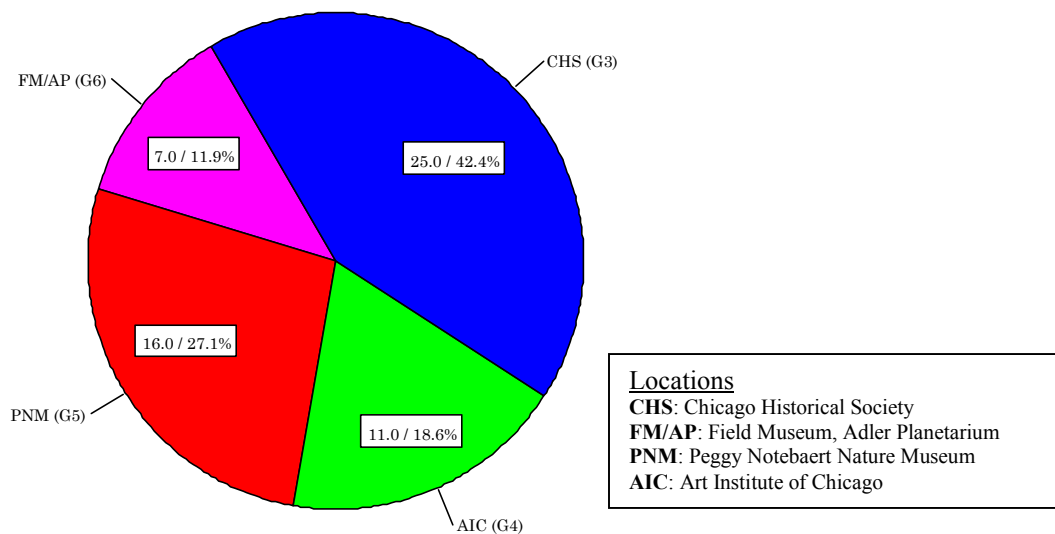
- ◆ In all, 77.1% agree or strongly agree that the day was well organized.
 - ◆ Although, 9.9% strongly disagree that the day was well organized.
- ◆ In all, 80.9% agree or strongly agree that the experience was worth time and effort.
 - ◆ However, 9.2% strongly disagree that the day was worth time and effort.
- ◆ In all, 84.2% agree or strongly agree that the experience will benefit students.
 - ◆ However, 6.2% strongly disagree that the experience will benefit students.
- ◆ In all, 72.8% agree or strongly agree that the day exceeded expectations.
 - ◆ Yet, 10.6% strongly disagree that the day exceeded expectations.

5.3.2 Workshop I

The first (proper) workshop took place on January 21, 2000. This was the first opportunity for teachers to receive and work with MAPS curriculum units¹⁸. One notable change in approach was that rather than having all MAPS teachers meet at a single site for this inservice, the teachers were divided by grade level groups — corresponding with the grade level assigned to each of the four curriculum units — and went to four museum sites. This provided teams of Museum educators with more autonomy to prepare and to deliver the workshop. It also enabled the teams to take fuller advantage of resources at the local sites.

Implication for the MAPS Study of the move to four sites rather than a single site were significant because teachers' experiences would vary according to differences between sites. This variability could be any uncontrolled combination of instructors' characteristics, teachers' grade level assignment, instructional environment at the sites, resources, curricular materials, etc. In addition, the sample was now divided non-randomly, and into four unequal subgroups (Figure 9) with smallish sizes. These and other factors eliminate the viability of quasi-experimental designs and meaningful statistical hypothesis testing. Thus, the MAPS Study was better served to implement a case study approach based primarily on self-report survey and impressionistic (observation and artifact) data.

Figure 9: Workshop I Distribution of Participants by Location



Results of questionnaire data from the first workshop are illustrated in Table 9, Figure 10, Figure 11, Figure 12, and Figure 13. See also Appendix A: Instruments for the precise wording and presentation of these items.

Table 9: Workshop I Descriptive Statistics for All Locations Combined

Var.	Label	Mean	Std. Dev.	Min	Max	N
AMV	Annual Museum Visits	3.70	2.17	1	>7	56
Q03	Participation	3.63	.49	3	4	59
Q04	Learning Standards	3.54	.60	1	4	59
Q05	Benefit Students	3.73	.45	3	4	59
Q06	Use Museum Resources	2.84	.75	1	4	57
Q07	MAPS Units	3.76	.43	3	4	59
Q08	Workshop Expectation	3.62	.49	3	4	58
Q09	Stimulated Thinking	3.68	.47	3	4	59
Q10	Desire to Learn	3.68	.51	2	4	59
Q11	Useful Information	3.78	.42	3	4	59
Q12	Benefit Teaching	3.75	.44	3	4	59
Q13	School Curriculum	3.66	.48	3	4	59
Q14	Worth Time & Effort	3.71	.46	3	4	59
Q15	Well Organized	3.69	.53	2	4	59

In Table 9, the variable AMV represents "Annual Museum Visits" or the item reading: "How many times have you been to a museum in the past 12 months (including today)?" Since the MAPS Kick Off Event was also held at a museum (the Field Museum), this visit was expected to have been added to the response (i.e., " ≥ 2 ") for those who attended both events. This variable then, was intended to indicate the extent to which teachers voluntarily visited museums beyond anticipated attendance at MAPS functions. The mean value ($\bar{x} = 2.17$) indicates that this group, in general, and at this point in time, had not been to the museum beyond what would have been predicted as a consequence of attending the two MAPS events. This is expected. It is also expected that if MAPS is successful (see Guiding Questions, page 8), the mean value of AMV less the number of MAPS events should increase over time.

The remaining items are conveniently divided into two classes. Items Q03 through Q07 are related to goals of the MAPS program. Items Q08 through Q15 represent participants' impressions of — or satisfaction with — the particular workshop event.

As is evident in Figure 10, teachers' responses are strongly positive¹⁹. The one aberrant item, Q06 ("I use museum resources in my classroom") may provide a benchmark for the others as well as an indicator of MAPS influence on teachers' practice. Again, as with AMV, the MAPS initiative would not have been expected to impact teachers use of museum resource as of Workshop I.

¹⁸ In the original plan, MAPS was to have the curriculum units available for the Kick Off event. Instead, teachers received the first half of the first unit at Workshop I. These materials were to be considered experimental.

¹⁹ Refer to the instrument "MAPS Workshop 000121" on page 57 for exact wording and presentation of these items.

Figure 10: Workshop I Goal Related Items (Q3-Q7) All Locations Combined

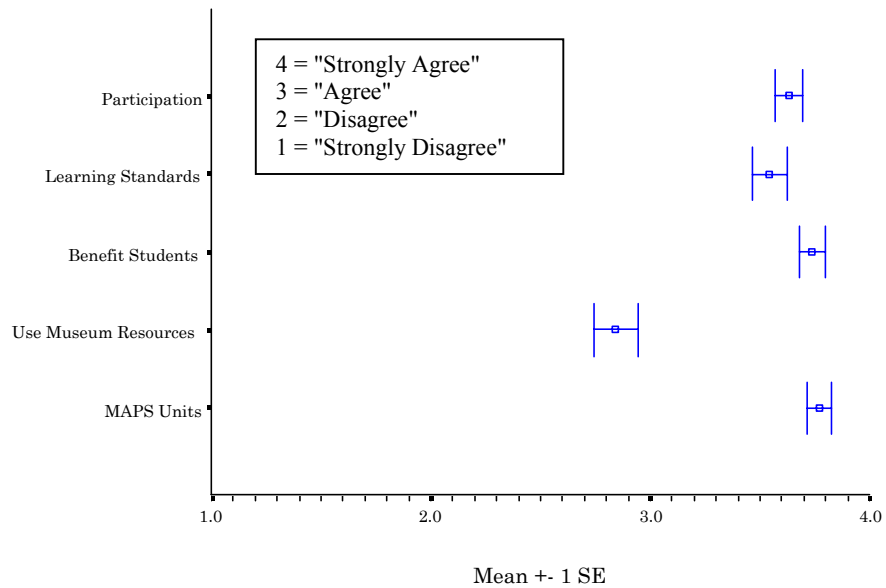
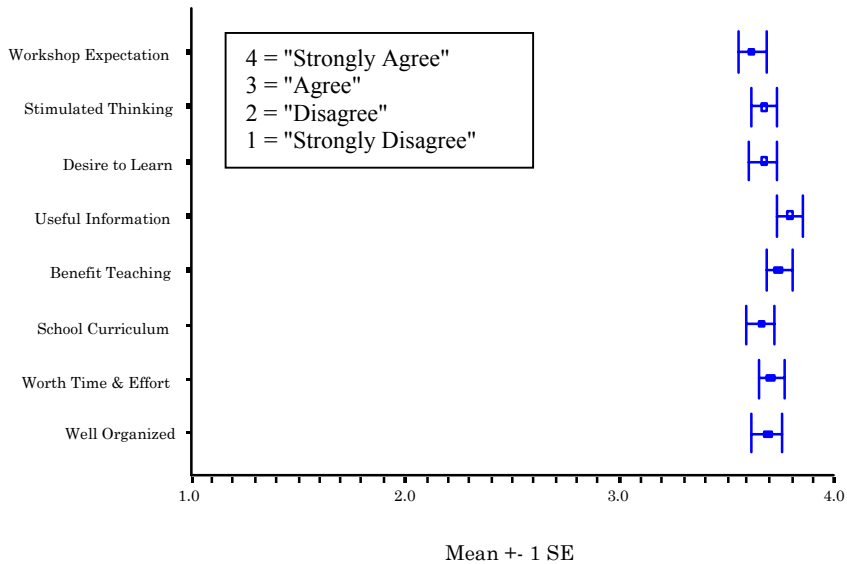


Figure 11: Workshop I Impressions Items (Q8-Q15), All Locations Combined



The same results are repeated in the following figures, this time with responses disaggregated for the four workshop locations. The standard error bars are used to illustrate that there may well be group or site dependent differences as shown by both "Goals" and "Impressions" items. For example, the Grade 6 (Location is FM/AP) response to Q04 "Learning Standards" appears distinct relative to other groups. The full text of this item reads: "Aligning my curriculum to the Learning Standards is good for my students." Note however, that this was a group of only seven teachers (accounting for the

magnitude of the standard error bars), and given the myriad of potential influences, no inference is readily made. Instead, the potential value of these data is in the representation of trends over time, particularly as the MAPS program itself develops and improves.

Figure 12: Workshop I Goal Related Items (Q3-Q7) Locations Disaggregated

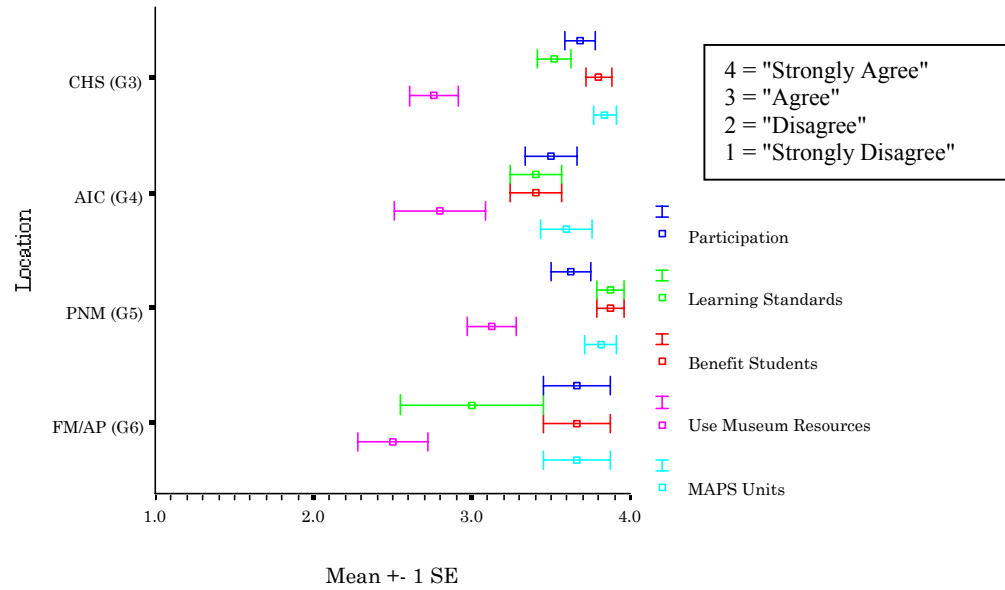
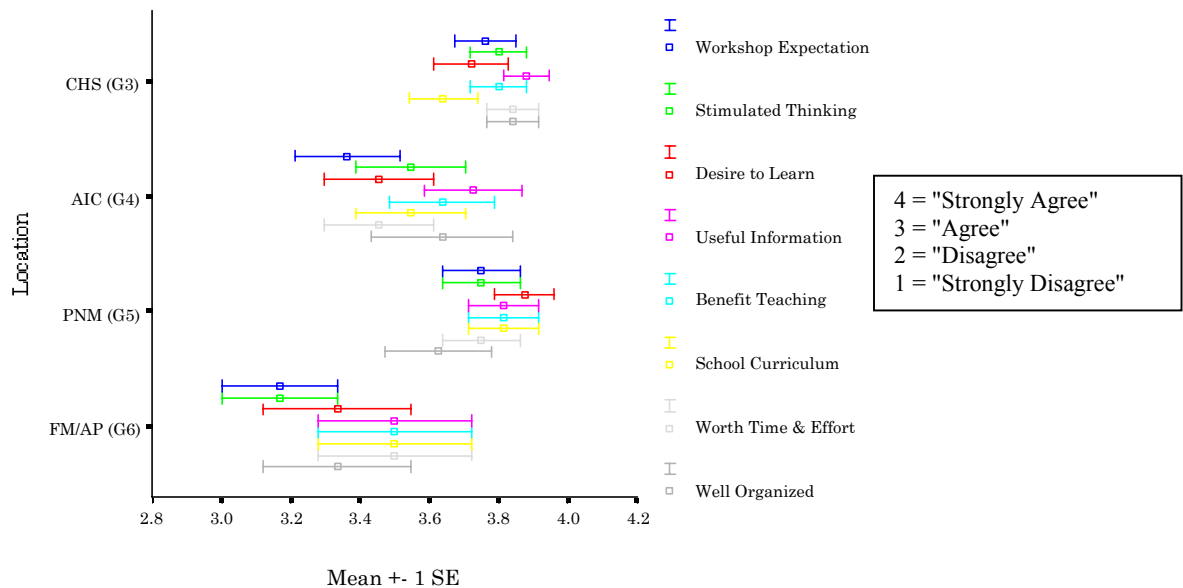


Figure 13: Workshop I Impressions Items (Q8-Q15), Locations Disaggregated



It can be seen, on the other hand, that the patterns in the aggregated results tend to be reflected by all four sites in the disaggregated results. This suggests that it is reasonable to consider responses in the

aggregate. In other words, interpretation of subsequent workshop results will treat the aggregation of all four sites as a case — the "MAPS Workshop" — rather than four group/site-dependent cases.

It is worth noting that the planning which took place just prior to Workshop I appeared to be pivotal for MAPS as an organization. Having completed the Kick Off Event, attention had returned to the development of the curriculum units. Because these were not ready, the date for Workshop I was delayed to early December²⁰ and then again to January 21, 2000. Therefore, the level of anticipation at the January 13, 2000 planning meeting of the Museum Educators was high. MAPS project manager, Dr. Carol Adams, announced that 10 lessons, the first half of the first unit, would be ready for Workshop I. Thus, it was understood that rather than deliver (so to speak) two units over three workshops, there would be two half-units over two workshops. This, and the delayed date for Workshop I, set the MAPS program significantly out of phase from the original plan. Again, this was primarily an effect of the need to have the curriculum materials adequately developed prior to release²¹.

Having said this, one might imagine the sense of "stake" at the January 13 planning meeting. For example, there were some at this meeting who were highly concerned that CPS writers had taken liberties during revision of the materials without consulting museum educators. Specifically, the popular children's movie, Free Willie, had been inserted as a suggested resource to the understandable objection of educators of the Shedd Aquarium (where Beluga whales are resident). Another example of the dynamic and sometimes

<p><i>I realize that you didn't get to know each other, and that's what you need.</i></p> <p>- John Franz, CPS Administrator</p>
--

passionate discourse occurred among representatives of the Mexican Fine Arts Center Museum, the Adler Planetarium and Astronomy Museum, and the Chicago Public Schools. In this case the concern was related to the centrality of creation myth in Latino culture; the relationships among mythology, astrology, and astronomy; and concerns about avoiding the evolution controversy and the confusion of "creation myth" with "creationism".

What this is intended to illustrate, is the simultaneous diversity and depth of understanding of the museum and CPS personnel involved. It highlights the complexity of human relationships and "world views" that the integrative nature of the MAPS initiative evokes. Moreover, it suggests that this heterogeneous assembly will require time and opportunity to develop and mature.

²⁰ Source: Field notes of the MAPS Evaluation Committee Meeting, 11/08/99.

²¹ Factors contributing to the delay in the readiness of these materials may have included: (1) unrealistic goals for completing this task in one summer session and with a principally *ad-hoc* team; (2) need to review materials, especially for content, cultural and language appropriateness; and (3) project leadership was not fully established by the summer writing. It seemed that in the end, few involved disagreed with the decision to withhold the materials.

Understandings that surfaced at the January 13 planning meeting included²²:

- ◆ The work must be organized according to development teams with the necessary representation of stakeholder-partners.
- ◆ These teams must be given sufficient time, resources, and authority to fully understand (negotiate) and complete the work.
- ◆ Time and conditions must also allow for review and testing cycles.
- ◆ Overall management and leadership-support must be adequate, reliable, adaptable, and promote demonstrable progress as outlined in the Strategic Plan.

These understandings represented very significant developments in the MAPS initiative. It was healthy that they were "exposed", as they were, just prior to Workshop I. Teacher-participants, as their impressions show, did not, in general, experience these "growing pains" of the MAPS initiative.

5.3.3 Workshop II

The second workshop was held on March 31, 2000, two months after Workshop I, and again at four locations according to MAPS (grade level) Units. The purpose of the second workshop was similar to the first, principally for teachers to receive new MAPS units and to experience how they might use them. In addition, because teachers received the first issue of materials at Workshop I, the second workshop also provided an opportunity to gain feedback on the extent to which the initial units had been tried.

For the MAPS Study itself, arrangements were made to have two researchers at each location in order to conduct systematic observation. Consistent with the purposes of the MAPS Study, the intent was not to evaluate individual locations. Instead, the purpose of the observations were to characterize the participants' experience of the MAPS workshop, in general. The distinction here is important because the methodology (two trained observers at each of four sites for a single observed event) is insufficient to *evaluate* individual teams or programs. More credible is the characterization of the overall experience of MAPS on that particular day. Having stated this, note that some of the observation data reported in this section are displayed disaggregated by location. This is done, however, to indicate the existence of variation between sites, not to quantify (or judge) that variation. The reader is asked to interpret results accordingly.

²² These were stated in a confirmatory way to the group by an administrator as "new policies": "(1) The CPS/Museum educators need to work as a team rather than bouncing reviews back and forth. (2) Each team needs time to do the development. (3) Focus on new ways for CPS-MiP synergy."

Figure 14: Workshop II Goal Related Items (Q3-Q7) Three Locations Combined

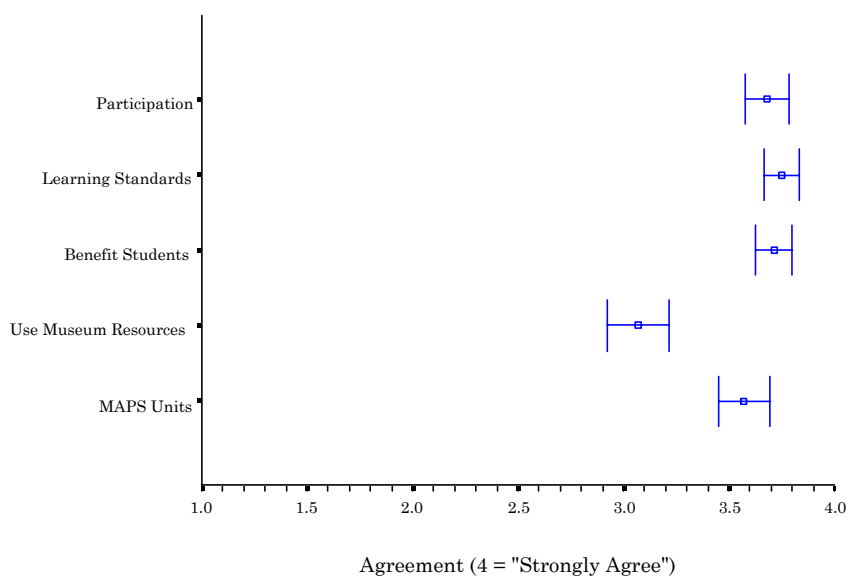
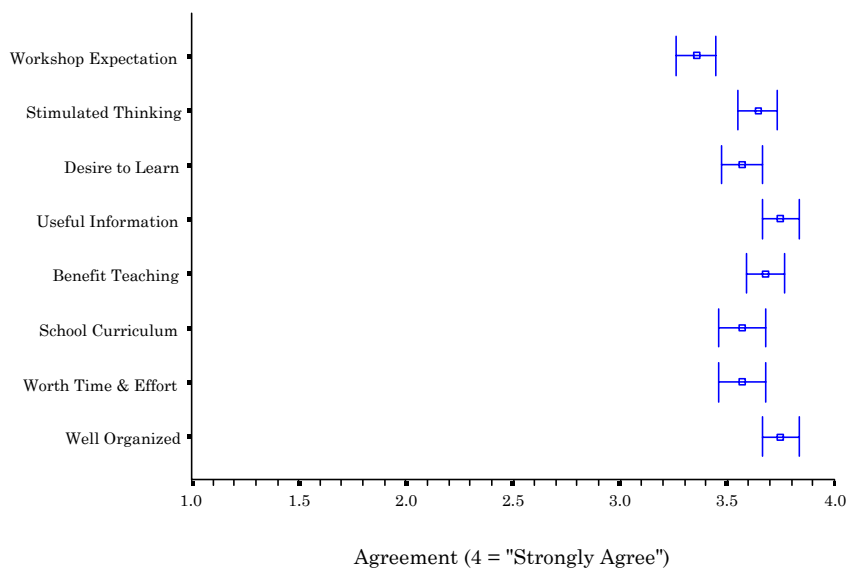


Figure 15: Workshop II Impressions Items (Q8-Q15), All Locations Combined



By the time that Workshop II was being planned, it had already been established from Workshop I survey results (see section 5.3.2) that teacher-participants responded very favorably on items representing the program goals and impressions of the workshop experience. These findings were confirmed for Workshop II as can be seen in Figure 14 and Figure 15. Notice that these results represent the aggregation of three of the four locations, or n=29 of n=55 participants because surveys

were not returned²³ for one of the sites, the largest, representing nearly half of the total number of participants. Still, the results are very comparable with those of Workshop I. Again, the item labeled "Use Museum Resources", which reads: "I use museum resources in my classroom" (accent added), provides a useful benchmark for comparison.

Beyond the wish to establish that participants were satisfied with the second workshop, as they had been with the first, was the wish to characterize the workshop experience. A primary function of the observations is to seek features of the workshop experience that may have potential for characterizing MAPS as either similar and/or distinct from common professional development. Distinct features, should they be recognized, may lead (in time) to viable indicators of program impact. For example, professional development in the museum setting, using museum (object)- and standards-based materials, might be hypothesized to model for teachers the efficacy of integrative approaches in teaching and learning. If this were the case, then workshop activities would be noticeably trans- or multidisciplinary. Such a feature of "distinctly MAPS" workshops, once validated, could then serve as an indicator of more or less successful workshop designs or events. In short, observations were used to begin to describe features of MAPS workshops as a launching point for understanding what makes them "MAPS".

Feedback from teachers about their impressions of the MAPS workshops were consistently very positive. A high esteem for Museum Educators was also noted.

The structured observations were accomplished by a team of seven observers, two for each of three sites and one for the fourth location²⁴. In preparation for conducting the observations the research team met for an advance design session held at the Illinois Mathematics and Science Academy on March 29 from 9:00 a.m. until noon. At this session, the team was provided with the protocol and materials, including surveys and the laptop computer-based Classroom Observation Tool²⁵ for facilitating recording. Operational definitions of constructs used in this tool were discussed until all were satisfied with the level of agreement. Teams were assigned such that each pair included one individual who had prior experience with the Observation Tool and protocol.

A second debriefing session was held with the team on May 9, 2000, 1:00-4:00 p.m. The agenda for this session included two strands: (1) negotiation of impressions (what was common among sites and what was unique), and (2) assessment of the process and protocol. Impressions of the day included

²³ Surveys were completed at all four locations, however at one site only the incomplete surveys were returned by the responsible researchers (two site observers). Despite considerable effort when this error was discovered, the missing surveys were never located.

²⁴ The solo observer was the director of the study and was assigned to the site with lowest anticipated enrollment to ensure a reasonable recording load.

²⁵ Protocol were based on a series of classroom-based studies originating from: Science Education for Rural Girls: Education Equity through Master Teaching. (1988). Kahle, J. B., Principal Investigator.

both inferences and questions. These impressionistic characterizations of the workshop and open questions arrived at after negotiated discourse among the observation teams, are listed here.

- ◆ Overall, observers were impressed with the materials and the curricular units, which were seen as rich with potential for engaging students.
- ◆ The primary outcome of the workshops was inferred to be that teachers were introduced to the materials. The workshops were seen as effective in this regard.
- ◆ Observers were impressed with the pedagogical content knowledge (Shulman, 1986) demonstrated by Museum Educators. As a group, they demonstrated an unusually high degree of facility with questioning techniques and knowledge of pedagogical matters, such as Higher Order Thinking Skills (HOTS).
- ◆ At one site, a discrete activity was conducted to illustrate each lesson. At the other sites, however, materials or activities were not so clearly connected to the units. This is to say that considerable other materials, museum resources, and activities were incorporated. Does this promote or distract from teachers' opportunity to become familiar with the MAPS units? Is it more or less desirable to have workshops explicitly tied to the (rich) curriculum units?
- ◆ Although learning standards were mentioned by workshop presenters, it appeared that it was not an expectation that teachers would come to understand (that day) how MAPS activities connect by design to learning standards. Teachers had opportunity to "mess with" the activities, but were not observed to examine materials for alignment with learning standards. Does MAPS intend to promote teachers' understanding of how the materials are designed to address learning standards?
- ◆ Teachers very clearly appreciated the materials but it was not possible to determine if the workshop would be sufficient for promoting ability to use them effectively. How will teachers make the connection between the materials and the museums as an integral resource? Will teachers have sufficient grounding in the use of the materials to leverage them as intended? Is an explicit instructional model required (i.e., Learning Cycle, Problem Based Learning, etc.) as a referent for implementation? A more significant and sustained professional development program may be warranted.
- ◆ Workshop leaders were observed to provide teachers with brochures and other documents containing information about how to contact the education offices of the museum sites. Some also provided business cards to the teachers. There did not seem to be additional means for supporting implementation at the local school. Since teachers between their fourth and eighth years are more likely to implement an innovation (Loucks-Horsley, 1998), there is also a concern that MAPS teachers, being in their second year, may find full implementation to be particularly challenging.
- ◆ Methods and materials for the (standards-based) assessment of student learning did not appear to be part of this workshop agenda. Assessment that is relevant to the teachers' local requirements and needs may be important to develop. Are viable, credible, tested, and relevant assessments embedded in the materials?

Again, these impressions are not intended to be evaluative. They do represent observations of the research team that seemed to characterize the workshops in general, that raised questions about what

the workshops were intended to accomplish, or that suggested potential directions for developing the professional development dimension of MAPS.

The remainder of this section contains categorical descriptors, also derived from the observations. The purpose is, as before, to provide a basis for characterizing the MAPS workshops. Subsequent work on the MAPS Study can build from this information base. To begin, the research team recorded demographic information. Table 10 shows that participation in the workshop appeared to be ethnically diverse, as would be expected (compare with Table 6). It is also evident that women are more represented than men which is typically the case among the Elementary grades.

Table 10: Observed Participation at Workshop II Locations

Location	Ethnic Distribution					Sex Distribution		
	White	Black	Hispanic	Other	Total	Male	Female	Total
Art Institute	5	4	-	1	10	2	8	10
DuSable Museum	5	3	-	2	10	-	10	10
Field Museum	5	2	1	-	8	3	5	8
Science & Industry	14	9	2	-	25	3	22	25
<i>TOTAL</i>	29	18	3	3	53	8	45	53

The observers were asked to determine the adequacy of the physical learning environment for the workshop. The attributes "resources", "space", and "arrangement" were used to describe the environment (Table 11). Results illustrate that the observers shared positive impressions. Note that the difference between "Strongly Agree" and "Agree" between sites (particularly the Art Institute and the others) may well indicate differences in judges' interpretation of the criterion. Observers were in teams of two and restricted to a particular location and so there is no way to calibrate such determinations between sites (other than the deliberation about the definition of constructs in the design and the debriefing sessions). Instead, these results suggest the positive conclusion that the MAPS Workshop II overall was held in locations seen as suitable for learning. These data also suggest that the ways in which the learning spaces were arranged might be improved (column 3).

Table 11: Observers' General Assessment of Workshop II Instructional Environments

Location	Resources	Space	Arrangement
Art Institute	Agree	Agree	Agree
DuSable Museum	Strongly Agree	Strongly Agree	Agree
Field Museum	Strongly Agree	Strongly Agree	Agree
Museum of Science & Industry	Strongly Agree	Strongly Agree	Strongly Agree

Resources = "This location is rich in resources."

Space = "This location has ample space."

Arrangement = "The room arrangement facilitates learner interaction."

Additional characteristics observed at each of the four locations included: (1) the use of a variety of instructional resources; (2) arrangement of the learning space to facilitate interaction; (3) instructional methodologies of the workshop leaders; and (4) content domains represented in the activities. Taken in some combination, these attributes may suggest a way to characterize the MAPS workshops.

Table 12: Observed Instructional Resources Utilized at Workshop II

Instructional Resources	Location				<i>Count</i>
	Art	DuSable	Field	S&I	
AV Resources	✓		✓		2
Kits or Manipulatives	✓			✓	2
Museum Exhibit			✓	✓	2
Objects, Specimens, or Models	✓				1
Print materials	✓	✓	✓	✓	4
Tools or Instruments		✓			1
<i>Count</i>	4	2	3	3	12

The primary media for instruction, as expected, was printed material (Table 12). However, all four sites demonstrated some variety of materials beyond print matter. Surprisingly, only one site was recorded during the observation period to have used material classified as "objects, specimens, or models" (which would include museum artifacts, but no full museum displays). One would expect that instruction at museums would be characteristically generous in the use of artifacts and specimens. Therefore, this category, with refinement, seems to have potential for characterizing MAPS workshops. It follows that this should also characterize a "MAPS classroom" where MAPS units are integrated into the enacted curriculum.

Table 13: Observed Instructional Arrangements at Workshop II

Experience Structure	Location				<i>Count</i>
	Art	DuSable	Field	S&I	
Individual		✓	✓	✓	3
Learner Pairs				✓	1
Small Groups		✓		✓	2
Whole Class	✓	✓	✓	✓	4
<i>Count</i>	1	3	2	4	10

It was also expected that the workshops would tend to feature a high level of participant interaction with the MAPS Units and artifacts, and that while exploring these materials participants would be interacting extensively with one another. Results of the observed record of the Experience Structure (Table 13) show *some* tendency to utilize a variety of structures with whole class mode being common to all. Also, Table 14 shows that the more common instructional methodologies are teacher (workshop leader) oriented although so-called "learner centered" methods were also observed.

Table 14: Observed Instructional Methodologies at Workshop II

Methodologies	Location				<i>Count</i>
	Art	DuSable	Field	S&I	
Coaching	✓				1
Collaborative Learning		✓		✓	2
Data Collection		✓	✓		2
Learner Questioning			✓		1
Teacher Lecture	✓	✓	✓		3
Teacher Questioning	✓	✓	✓	✓	4
<i>Count</i>	3	4	4	2	13

Given that the museum environment, the curriculum materials, and the resource materials can be expected to be highly engaging, it seems reasonable to expect that very little teacher questioning or lecture should be required relative to the other methodologies. These results seem to be explained, however, by circumstantial realities. Eleven of the n=55 participants (20%) had not attended the first workshop. Also, there were indications that the majority of teachers had not been able to use the first set of materials during the interim period between Workshop I and Workshop II²⁶. Consequently, Workshop II was essentially introductory and much of the dialog was observed to be explanatory.

Perhaps the most promising suggestion of a robust indicator for MAPS-like instruction, an operational definition for the concept "integrative", is the multi- and trans-disciplinary nature of the activities. Using traditional categories (U.S. Department of Education, 1996), the MAPS workshops are not restricted to a single content domain (Table 15)²⁷.

Table 15: Observed Disciplinary Content at Workshop II Sites

Observed Content Domain Area		Location				<i>Count</i>
		Art	DuSable	Field	S&I	
Mathematics	Applied			✓		1
	General	✓			✓	2
	Geometry				✓	1
Science	Biology or Life	✓		✓		2
	Earth/Space			✓		1
	Environmental	✓				1
	General				✓	1
	Integrated Sciences				✓	1
	Physical Science				✓	1
Social Science	American History	✓	✓			2
	Geography	✓	✓	✓	✓	4
	Local History				✓	1
	World History			✓	✓	2
<i>Count</i>		5	2	5	8	20

²⁶ This is documented also in Table 4.

²⁷ SASS content area categories that were not observed are not displayed.

Taken together, the observation results suggest that the MAPS professional development agenda (and presumably, MAPS classrooms by association) is at this time not easily characterized by traditional descriptors. This suggests a challenge to MAPS leadership to define its criteria for excellent professional development, teaching and learning. The criteria would be useful for the development of observable indicators of the distinct attributes of MAPS professional development in order to promote program coherence and advance the effectiveness its programs. Then, implementation of the professional development component of MAPS could proceed with these criteria explicitly communicated among all contributors and participants.

5.3.4 Wrap Up Event

The final major event of this experimental year was originally planned to be a third workshop — a continuation of the previous ones. It was decided, however, that the event should be more productive as an opportunity to examine what individual participants and the organization at large had learned from the experience. In addition, the event could be used to propel the MAPS initiative forward into a new program year with actionable information. For this purpose, the event was immediately followed by a facilitated strategic planning retreat for MAPS leadership. The MAPS Wrap Up Event, therefore, was designed as an activity of the MAPS Study. Thus, it was planned by the Evaluation Committee in collaboration with the MAPS Program Manager and implemented by the research team on behalf of all MAPS participants and leaders.

The design for the MAPS Wrap Up Event was developed with the following objectives:

- ◆ To provide a forum for all MAPS contributors and participants to gain insight from the perspectives of the others. What is working well and how do we know this? What is not working so well and how do we know? What might we do better?
- ◆ To provide authentic data around the MAPS Study Guiding Questions.
- ◆ To inform and to set the stage for the afternoon planning retreat.

For the reader's convenience, the design document is reproduced in Appendix B, page 72. As can be seen from this document, the day was designed to be highly interactive and to expose and record all attending MAPS participants' summative impressions of their experiences of the Initiative.

A tool was created with the purpose of providing prompts and structure for this feedback. The intent was to evoke responses for each significant (or potentially significant) activity or event. However, these responses were also to focus primarily on, but not restricted to, the MAPS Study Questions (Figure 3, page 8). This tool, called the "Mapping MAPS" document (see 8.1.5), provided an organizational rubric for the morning's work.

Based on the Mapping MAPS document, seven stations were constructed around the room, in chronological order, each representing a significant MAPS event, period, or set of activities. Each station provided a title to indicate the event (etc.) represented there, a display of the focus questions relevant to that event, and displays of artifacts from the event - including charts, graphs and participants comments. Primarily, the stations provided a workspace for participants to "expose", organize, and synthesize the myriad of experiences and from various role perspectives (administrator, museum educator, and teacher). Opportunities were provided for individual reflection and group discussion, negotiation, and synthesis of results.

Upon conclusion of the event, resultant data sources included:

- 1) Mapping MAPS tool from each participant indicating the events and activities in which they had participated. Results from this source are reported in Table 5, page 18.
- 2) Collections of comments and notes at each of the stations. These were organized into clusters by the participants according to what they saw as themes, trends, or variants. Subsequently, they have been transcribed and reviewed as primary data source.
- 3) Open responses to individual reflection on a set of seven summative questions, derived from the MAPS Study Questions (page 8).
- 4) Report-out of whole group interpretive synthesis of the day of self-study (Figure 23).

5.3.4.1 In what ways was your participation in the MAPS program of professional importance to you (if possible, please provide specific examples)?

The results from participants' responses to the personal reflection questions are reviewed here. The first question was of particular relevance to the MAPS Initiative and has been reviewed with the most intensity. A few well-selected responses are provided in Figure 16 for illustrative purposes.

All responses to this item were reviewed recursively in order to ascertain common themes or categories of the responses. These categories suggest aspects of the experience which may have been particularly common (or at least commonly perceived) or particularly important. It is worth noting that the categories are derived from a divergent open response question as opposed to a convergent or forced choice response set. Therefore, even frequencies in low percentages may indicate an important category. Without specific prompts (as in forced choice) important features may well be represented as relatively low frequencies. It is reasonable however, to gauge the responses somewhat relative to one-another. For example, the category represented by the highest frequency effectively estimates the upper limit for a category given the free response structure of the item. If, in the future, there were interest in quantifying the frequency of agreement with a selection of categories, forced choice items could be constructed. These results might be used to define instruments for subsequent research.

Figure 16: Participants' Impressions of the Professional Importance of MAPS

Q1: In what ways was your participation in the MAPS program of professional importance to you (if possible, please provide specific examples)?	
Role	Response (n=64)
Teacher	MAPS was important to me as a new CPS teacher because it influenced me to believe that the highly criticized CPS school district is trying to improve itself. MAPS helped motivate me. It gives hope to those teachers who may have lost it for CPS.
Teacher	It opened my eyes to what the museums have to offer. I stopped coming to the museums after grammar school. I believe with all the new improvements, teachers around my age will now be more inclined to come and bring their students.
Teacher	I really enjoyed being able to interact with other teachers to find how the MAPS Program worked in their school. I particularly like the fact that we as teachers have another outlet for our curriculum. I enjoyed the unit on the water cycle. It taught me some other things as well. Thank you.
Museum Educator	Networking with other museum educators has been very valuable to me. Other than this, my participation as a museum educator has been a nuisance. The severe, extreme communication problems and power struggles between CPS, MAPS and the museums has hindered the program to the point where I do not feel it is worthwhile.
Teacher	My skills in presenting a unit were greatly enhanced, and I learned how important it is to connect with the children.
Teacher	I was glad to hear that others felt the same way I did about the program (this is, "somewhat confused"). I will definitely be saving these materials given to me for next year. I don't feel like such a small fish in such a large ocean anymore.
Museum Educator	Participating in MAPS has allowed my museum to make fundamental changes to the way we think about and reach out to CPS students and teachers - we have become much more aware of our responsibilities and much more interested in and receptive to their feedback. This alone has been worth all the frustration!
Museum Educator	In museum education, it is extremely important to create strong relationships with teachers. MAPS also has created relationships between museums which is a plus. MAPS has provided these opportunities.
Teacher	MAPS provided appropriate information and materials so that I could fine-tune my teaching. I can now plan field trips, and other learning activities, well ahead of time, so curriculum, etc., can be correlated.
Teacher	Provided me with an interesting, engaging curricular unit to share with my students. Strengthened my knowledge and interest in the city's museums and how I could better use them as a resource for my classroom.

Table 16: Teacher Perspectives on Professional Value of MAPS (n=63)

Category	Percent of Respondents	Number of Responses
Resources	34.4%	22
Classroom Relevance	25.0%	16
Teacher Learning	21.9%	14
Collegiality (interaction with peers)	20.3%	13
Teacher/Student Motivation and Interest	20.3%	13
Activities/Hands-On	17.2%	11
New Ideas and Options	15.6%	10
Content/Subject Matter	12.5%	8
Connections (beyond the school)	9.4%	6
Integration (of subject matter content)	7.8%	5
Relevance (to the students)	7.8%	5
Assistance with Logistics (i.e., busses)	6.3%	4
Curriculum (fit within)	6.3%	4
Extensions (beyond the curriculum)	6.3%	4
Methods/Strategies for Teaching	6.3%	4
Standards (fit with CPS standards)	4.7%	3

The resulting categories from analysis of Q1 (see Figure 16 for the example responses) are reported in Table 16. Clearly, there was strong recognition of MAPS as having professional value by providing resources, classroom relevance, and professional development and collegiality. Other attributes of the MAPS materials and professional development program seen earlier are affirmed by these data.

Perhaps most surprising (to the research team, at least) is the recognition of the fit of MAPS materials with the CPS learning standards. We take this as evidence against our hypothesis that the program may not have effectively promoted teachers' understanding of the relationship (by design) of MAPS with the standards.

Finally, examination of the items, as well as their relative rank, against objectives in the MAPS Strategic Plan (when it is complete) may provide insight into aspects of the program which merit increased effort. For example, assistance with logistics was valued by participants. Can a sustainable structure be put in place to expand this? Is this a desirable or necessary function of the program? Should it become integral to CPS rather than MAPS?

5.3.4.2 *In what ways have your work habits and/or priorities changed as a result of your involvement in MAPS?*

Figure 17: Change in Participants' Work Habits

Q2: In what ways have your work habits and/or priorities changed as a result of your involvement in MAPS?	
Role	Response (n=56)
Teacher	I wish I was more able to change my work habits to teach the units. However, conditions beyond my control such as timing, school priorities, administration demands prevented me from teaching the units as much as I'd have liked. I did love the museums more and will volunteer in two of them this summer and member of one.
Teacher	None - as I was not properly oriented as to what was supposed to be implemented.
Museum Educator	MAPS has taken up a large part of my work time every couple of months for a few weeks at a time. Much staff time and energy is needed for this program.
Teacher	I became more hands-on in teaching social studies and Chicago history - it was fun for both me and my students.
Teacher	I started using materials in class besides just a boring textbook or dittoes.
Museum Educator	They have not changed. MAPS is another job responsibility I have, and I do my best to fulfill its needs.
Museum Educator	I have had to cease function on all of my other projects to partially prepare for ill-timed MAPS events. I work feverishly for 2-3 days on MAPS to meet deadlines, and then I try to erase it from my mind until the next event.
Teacher	My work habits were enhanced. I like teaching thematically and the units had the work done for me. I integrated subjects the units had purpose.
Teacher	I was able to get our classes to more field trips - although we were pretty good at that before.
Teacher	I don't feel so alone, and I know I can work with others in CPS. I try to work hard on involving these activities, but it has been difficult (the first year is always the toughest for a new program).
Teacher	I am more aware of my need to integrate lessons. I also have incorporated more science into my curriculum.
Teacher	I am more likely to plan trips that will be more purposeful.
Teacher	I did not use the lessons in my classroom. I did spend more time considering field trips. I thought long and hard about trips after the Kick-Off Event. The MAPS program introduced other possibilities.
Teacher	I see field trips as a whole new learning experience for my students.
Teacher	In terms of summer planning, I am going to organize how I will implement this program, so I have an idea how long it will take, planning of the field trips, and looking for resources that will compliment the unit.

Responses to Q2 (Figure 17) illustrate patterns found with respect to the MAPS on professional work habits. These data confirm previous observations that MAPS may cause teachers to see field trips differently and use them with more intention. They also confirm the "hands-on" and resource attributes of MAPS as well as opportunity for collegiality.

A more disturbing suggestion however, is that MAPS places a particular burden on Museum Educators. As the data have already shown that teachers highly value the assistance of the Museum Educators, MAPS will certainly need them to be even more involved and committed. Consideration of the load on Museum Educators is clearly warranted.

5.3.4.3 *In what specific ways can the MAPS Program be improved?*

Participants were prolific with ideas for ways to improve the MAPS initiative (Figure 18). There was a variety of perspectives ranging from organizational concerns to improvements of specific curriculum units. Themes relevant to structure, organization and strategy include communication, scheduling, targeted participation, administrative support, clear definition of roles and responsibilities, and shared vision. Themes related to teaching and learning include the "fine tuning" of materials (particularly for grade 3 and grade 5), support for assessment (confirming an observation made earlier), and mechanisms to support teachers ("hotline", WWW site, videos, networking).

Figure 18: Improving the MAPS Program

Q3 In what specific ways can the MAPS Program be improved?	
Role	Response (n=62)
Teacher	MAPS as a program can plan a yearlong calendar for dissemination to principals and teachers towards firmer planning for the semester, at least. Knowing dates of MAPS activities enables administrative cooperation early-on.
Teacher	By providing principals with more information, so they realize the importance of program. Also having more than one teacher from each school involved in program, so they can support each other in implementation.
Teacher	Fifth grade curriculum sequence and alignment (relevance) to standards needs to be improved through restructuring. Give units earlier in the year so teacher have more planning adaptation time. Include a standard assessment option as well as performance-based assessment. If possible avoid scheduling in-service on professional development days. Make certain current MAPS teachers are able to continue involvement next year!
Teacher	Do not have it on professional development days (you will have better attendance). There should be some standard paper and pencil assessments in the unit. The units/conferences should be earlier in the school year so we have time to implement them. The teachers who participated this year should also have a part next year - follow-up conferences, revised units, etc.
Teacher	Have a hotline for assistance for teachers. Sometimes I'd call and was put on hold for a long period of time. Give materials for the beginning of the school year to help me plan for the upcoming year. Have all the information laid out, I didn't know that the MAPS program provided buses.
Museum Educator	Communication all the way through the chain! (Clear, concise and consistent, at that) Example: wrong in-service site given to teachers, people not sure of who was to be at kick-off (people sent back to their schools), etc. All involved know where program is going.
Teacher	A variety of activities are needed. The fifth grade curriculum needs fine-tuning. It would be better to be notified in advance about the MAPS workshops. When a workshop is held in a museum, teachers should be given tours of the museum while they are there, instead of having to drive back to their school for one remaining hour. Teachers need to know how they can use the museum.

Q3 In what specific ways can the MAPS Program be improved?	
Role	Response (n=62)
Museum Educator	Museums must be given more of a say in all operating aspects of the project. With CPS dictating all communication and scheduling, I do not feel as if I have any ownership in the program and that leaves me frustrated, bitter, and ultimately angry. I want this program to work, but it can't unless we share a unified vision for what MAPS can be and then see it through.
Teacher	I feel that it is already an outstanding program. I listened to complaints about not receiving information, but I think that this can be directly attributed to principals of those schools. I received all information and materials in a timely manner. I feel that MAPS can be improved by adding a few more meetings throughout the year. Keep up the good work.
Teacher	I typically use my summer to plan for my entire school year. It would be best if unit were introduced beginning in August.
Teacher	Timing! Timing! Timing! Plan ahead and look at the CPS calendar.
Museum Educator	Communication, communication, communication! The museum educators and CPS teachers are committed to this project, but the CPS administration must make this a priority for it to work. They need to work with principals and regional offices to reinforce the importance and implementation of the project, and decide how to implement this and their commitment to standardized tests, which wreaked havoc at several levels - from teachers implementing the units and taking field trips, to teachers getting the necessary administrative support. More importantly, they need to effectively communicate, or else this is not a true collaborative partnership.
Museum Educator	Communication must be improved - communication between CPS and the museum educators and also museums and teachers. This would solve a lot of the current problems. It must be more of a partnership with all participants playing an equal role - not just CPS telling everyone what to do!

5.3.4.4 What are your plans for using the MAPS Units next year?

Of the n=45 responses to this item, it is interesting to note that 37 (82%) affirmed an intent to use the materials with the remainder suggesting that they are considering it. None of the responses stated that they did not intend to use the units. In addition, patterns indicated (1) a need for time to plan and prepare for implementation, and (2) importance of scheduling use of the materials around the testing (ITBS and ISAT) periods.

Figure 19: Plans to Use MAPS Units Next Year

Q4: What are your plans for using the MAPS Units next year?	
Role	Response (n=45)
Teacher	I'm changing grade levels but will continue to use the unit. I'll probably adapt it somewhat.
Teacher	I'd like to attempt to implement the program if I have proper assistance.
Teacher	To use the MAPS Units at the beginning of the school year before IOWA.
Teacher	I would like to implement more units rather than just the Chicago Waterways. What else is there? Why can't 5th grade be affiliated with other museums like the Art Institute?
Teacher	I plan to include them with other lessons that are appropriate.
Teacher	Next year, I plan to incorporate the units into all subject areas.
Teacher	I plan on reexamining the units. I might need to pick apart the plans to better fit my curriculum.
Teacher	I will teach MAPS unit and plan for it within my year's curriculum.
Teacher	I would like to be a school advocate for the program so that more colleagues can become aware of the project.
Teacher	Earlier integration of units into my curriculum and better scheduling.
Teacher	I plan to implement the MAPS units in as many subject areas as possible. I will adapt the materials, as I will teach 2nd, rather than 3rd, grade.
Teacher	I plan to review the curriculum over the summer and determine when and how to implement the units. I'm excited to use the curriculum!

5.3.4.5 *What are your plans for using the museums or museum resources in your curriculum next year?*

The findings for plans to use museums and museum resources are similar. Of n=46 responses, 89% (all but 5) indicated intent to visit museums. Some of these indicated a desire to make two, three, even four museum trips. In addition, several indicated a wish to visit more than a single museum site, even wishing to visit all of them! Others were undecided. Also confirmed was the teachers' need for time to plan well in advance as well as support from their principal.

Figure 20: Plans to Use Museums and Museum Resources Next Year

Q5: What are your plans for using the museums or museum resources in your curriculum next year?	
Role	Response (n=46)
Teacher	I plan to visit all museums related to the unit that I am teaching. If allowed by principal.
Teacher	Choose the dates of when I will go with my students. Visit the museum beforehand to better prepare myself. Gather events offered by the museum to better prepare myself.
Teacher	I plan on using the museums regularly to discover, analyze, and synthesize content in my units.
Teacher	I plan to visit at least three museums next school year. Also, I will share resources with teachers who weren't fortunate enough to participate in MAPS. This will help them better prepare to use trips to the museum to the utmost.
Teacher	I am really excited about using the museums next year. I'd like to visit some more than once.
Teacher	It sparked my curiosity and interest in using the museums as a resource not focused on one topic. For instance, going to the Art Institute is not just a visit to look at art but also to explore the culture, see history, examine symmetry, etc.
Teacher	I hope to visit all the museums next year.

5.3.4.6 *In what ways will you use the museums or museum resources differently than you did before MAPS?*

When asked how they will use museums and museum resource differently "than you did before MAPS", teachers tended to respond that field trips would be more focused and with purpose. Teachers said that they would plan better, they would use the museums for their own professional learning, and they would plan to "have more fun".

Figure 21: Plans to Use Museums and Museum Resources Differently

Q6: In what ways will you use the museums or museum resources differently than you did before MAPS?	
Role	Response (n=38)
Teacher	I am more aware of the opportunities within the museums that will go with things within my curriculum.
Teacher	The museum visits will be more structured. These will be a goal/specific reason(s) for students to visit these places.
Teacher	I never used them before MAPS. Now I do.
Teacher	I will visit more often on my own time and use what I learned as tools in the classroom.
Teacher	Rather than using a trip as a cultural experience for the sake of having a cultural experience, my trips will be an exciting extension of classroom learning.
Teacher	I will use my free membership often and have fun!
Teacher	Personally, I will visit the museums more for personal education.
Teacher	My field trips will be more focused on educational, academic goals - as opposed to random tours. Students will be engaged with specific displays and be required to do assignments.
Teacher	I want to start from the beginning of the year to schedule field trips. I was apprehensive in scheduling before test time because field trips are viewed as "fun" - which they are but also an opportunity for learning.

5.3.4.7 Any other thoughts, concerns, or ideas?

Finally, when participants were invited to provide free-response remarks, many impressions that we have already seen were reiterated. However, some requests appear to have been made with more, perhaps, ardor. These include:

- ◆ Keep the program! Keep it up! It's a great program!
- ◆ Allow the MAPS 2000 participants to stay involved in MAPS 2001.
- ◆ Bring in more teachers, especially teams within schools.
- ◆ Involve school administrators.
- ◆ Implement e-mail groups, WWW site, technology supports.

Figure 22: Participants' Free-Response Remarks

Q7: Any other thoughts, concerns, or ideas?	
Role	Response (n=35)
Teacher	Set up an e-mail group, so we can write the teachers working on the same units for ideas and suggestions. Chicago teachers were basically told to be using the dated and numbered structured curriculum each day. How should we include MAPS units in our schedule if we're responsible for structured curriculum?
Teacher	Would like to know if there is an internet part to the MAPS Program? Could there be one? As another resource before/after visiting museums.
Teacher	How long do I remain in this program? Will I receive the same support (i.e. workshops and new lessons) next year or will that only be for new teachers?
Teacher	Get school administration involved.
Teacher	Great job CPS/museums! Finally.
Teacher	It is great that teachers are given free memberships to the museums. Also, the materials that were given to the teachers is excellent. I think this is a good idea. Good Job!
Teacher	This has been a great start!
Teacher	Keep up the program. Promote it more to public. Continue museum passes and passports - good publicity. Hurray!! I enjoyed the year.
Teacher	What ever happened to the structured curriculum we were all supposed to be following? How is this going to be connected? What's going to happen next year?
Teacher	Feature units on the internet for those instructors that loop with their class.
Teacher	Student discipline is a concern. Some students are untrustworthy and can't be taken on field trips. What can I do with them? Funding for substitute would be a solution to the problem.
Museum Educator	Let's figure out a way to use all the wonderful new educational technology, so this hard work doesn't sit in some manual on a shelf, but is used by students in a hands-on way in increasingly "wired" schools.
Teacher	Overall, I think that MAPS is a wonderful and very worthy project.
Teacher	Well done!!!! Let's keep up the good work!!!
Teacher	I am happy to be included in the program and believe my students will benefit.

5.3.4.8 Wrap Up Event Group Synthesis

The last set of results to report from the Wrap Up Event is the report-out of the whole group synthesis of the day (Figure 23). These were recorded publicly with event participants via digital projection, and interactively — inviting dissension and correction. Spokespersons from each of the stations were asked to share three suggestions, findings, or inferences. Recall that each of the stations corresponded with a particular event or activity of the year, so findings that appear redundant in the list may

represent patterns in participants' experiences of the MAPS program. Also, recall that these statements reflect the interpretation of notes written individually in response to the focus questions at stations. Thus, these data represent participants "making sense of" participant-originated data.

The reader will note that the conclusions of participants themselves correspond with our own interpretation of these and the other primary data in this report. This completes the "member check" (Guba & Lincoln, 1989) suggesting credibility of findings. Thus, the Study appears to have internal validity as confirmed by participants. However, it is worth noting that external validity is indeterminable from these data. For example, the teachers who participated in MAPS are possibly not representative of their colleagues in general. They may well have been a select group with a predisposed affinity to museums and integrative teaching and learning.

Figure 23: Unedited Responses From "Wrap Up Event" Group Report-Out

<p style="text-align: center;">Museums and Public Schools (MAPS) Study GROUP REFLECTIONS MAPS WRAP-UP EVENT, MAY 31, 2000</p> <ol style="list-style-type: none"> 1) Strengths are the objectives of MAPS 2) Lack of information is a weakness. 3) Mixed feelings about resource materials. Consider also museum personnel to come to schools, funding, and technology assists. 4) Strong tie with Chicago and IL standards. 5) Introduce the program prior to the Kick Off 6) Poor organization and timing of the Kick Off was a key weakness (i.e., during report cards). 7) The purpose of integrating the schools and museums was a strength 8) Teachers want more interaction with museum staff, i.e., tours, hands-on training, increasing awareness of what's available at the museums. 9) More training on the curriculum end. More guidance with the materials. 10) Teachers enjoyed interactions with the museum staff. 11) Lack of communication during the first workshop, including announcement, location, parking. 12) Needed time to implement the materials (ISAT prep and ITBS prep interference). 13) Communication was a concern. All school personnel, especially principals should be aware. Consider including other teachers, not just second year. 14) Time to implement – need flexibility during the school year schedule. 15) Implementation of the curriculum, more guidance so that teacher can better plan to work this into the school year plan. 16) Teachers enjoyed museum activities and museum staff. 17) Time schedule conflicts. 18) Enjoyed activities and the alignment with the standards. 19) More principal support and staff support, i.e., networking amongst co-teachers. 20) Mixed comments about the use of the units. Kids really responded to the activities and enjoyed them. There is a concern that the links between activities and goals and standards may be weak in the 5th grade. 21) Need for information: not receiving materials, or not receiving enough information to be motivated to attend the workshops. 22) Possible to prepare a calendar in advance so that participants can plan.

5.4 MAPS CURRICULUM UNITS

So far, results of events have been reported. This section reports on the MAPS products, the curriculum units, and activities related to the implementation of these materials.

The Curriculum Unit Feedback Survey (page 78) was designed based on design criteria documents provided by the Program Manager. These materials included a set of criteria compiled by program leaders and design team members to be used for external review of the draft materials. Additionally, items were constructed to correspond with MAPS Study Questions (Figure 3) that were not addressed by the initial design criteria.

Table 17: Teachers' Perspectives on MAPS Curriculum Units (n=18)

min	mean	max	Item (sorted by item mean) 1="Strongly Agree", 2="Agree", 3="Disagree", 4="Strongly Disagree"
1	1.28	2	17 If teaching the same grade level, I intend to use this unit again next year.
1	1.33	2	3 The students showed a high level of interest in the unit.
1	1.50	2	1 This unit addresses the topic soundly.
1	1.61	3	4 The unit contains the right kind of information for this topic.
1	1.61	2	6 The students were motivated to learn.
1	1.61	2	18 This unit demonstrates exemplary use of museum resources for student learning.
1	1.67	3	14 Students learned science as described in the learning standards for this grade level.
1	1.67	3	15 Students learned social studies as described in the learning standards for this grade level.
1	1.72	3	22 It is not difficult for the teacher to use this unit successfully.
1	1.78	3	2 The materials contain no errors in the information provided.
1	1.78	3	7 The materials accommodate different learning styles.
1	1.78	3	16 This unit caused students to examine relationships among the content areas.
1	1.78	3	21 Students who tend to have difficulty in class were successful in this unit.
1	1.83	3	9 There is a good balance between skill development, concepts, and factual information.
1	1.83	3	13 Students learned mathematics as described in the learning standards for this grade level.
1	1.88	3	12 Students learned language arts as described in the learning standards for this grade level.
1	2.11	3	11 The unit is sensitive to perspectives of diverse cultures and societies.
1	2.22	4	10 Students who usually perform at higher levels ... were challenged to learn in this unit.
1	2.33	4	23 Sufficient resource materials are provided with the unit.
1	2.44	4	20 The students completed activities within the time periods allocated in the unit design.
1	2.65	4	8 There is too much information in the unit.
1	2.72	4	5 The unit was too difficult for some students.
2	3.11	4	19 It was difficult to teach this unit because the directions were not clear.

Initially, the Curriculum Unit Feedback Survey had been packaged with the MAPS units and disseminated at workshops. Teachers were instructed to complete the survey immediately upon conclusion of implementation of the Unit, and return it in the self-addressed postage paid envelope. Only two of these surveys were ultimately returned, one of which was marked to indicate that the Unit was not taught because the teacher had not received all necessary

Of the 84 teachers who participated in MAPS workshops, eighteen (21%) reported implementation of the curriculum units this school year. Eleven (13%) reported bringing students to the museums. Others say they intend to use the units next year.

materials. Therefore, the need remained to determine the extent to which the materials had been used and the nature of the experience for those who used them. In response to this problem a determination was made to present the survey once again, this time to the "captive audience" at the MAPS Wrap Up Event. Of course, the teachers who attended that day are only a partial representation of all teachers who may have in fact used the materials. In the end, it seems that at least eighteen teachers implemented the materials.

Results of the Curriculum Unit Feedback Survey are given in Table 17. Items are sorted according to the mean value of the responses. By doing so, it is possible to illustrate what participants rank as the most positive and the most negative features of the materials. It is encouraging, for example, that the top seven ranking items (strongest agreement) are:

- Q17: If teaching the same grade level, I intend to use this unit again next year.
- Q03: The students showed a high level of interest in the unit.
- Q01: This unit addresses the topic soundly.
- Q04: The unit contains the right kind of information for this topic.
- Q06: The students were motivated to learn.
- Q18: This unit demonstrates exemplary use of museum resources for student learning.
- Q14: Students learned science as described in the learning standards for this grade level.

It is likewise encouraging to see the items earning the lowest rankings on the list. Note that this ranking implies the least degree of agreement with the statement. Note also that some of the items are worded in the negative. Thus, a negative item with low agreement would suggest that there would be a relatively high level of agreement with the item had it been expressed in positive terms.

These findings suggest that the eighteen teachers who used the materials tended to have quite positive regard for them. Important criteria, such as student interest and appropriate level of difficulty, ranked among the top characteristics of the materials. Likewise, undesirable characteristics (i.e., inaccuracies and difficulty to teach) ranked relatively low.

A look at the distribution of the mean scores provides additional information. Relative to other features of the curricular materials, there is some disagreement that they: (1) are "sensitive to perspectives of diverse cultures and societies": (2) challenge higher-performing students; (3) provide sufficient resources; and, (4) allocate time realistically for activities. MAPS leaders will certainly want to examine the materials with respect to these features.

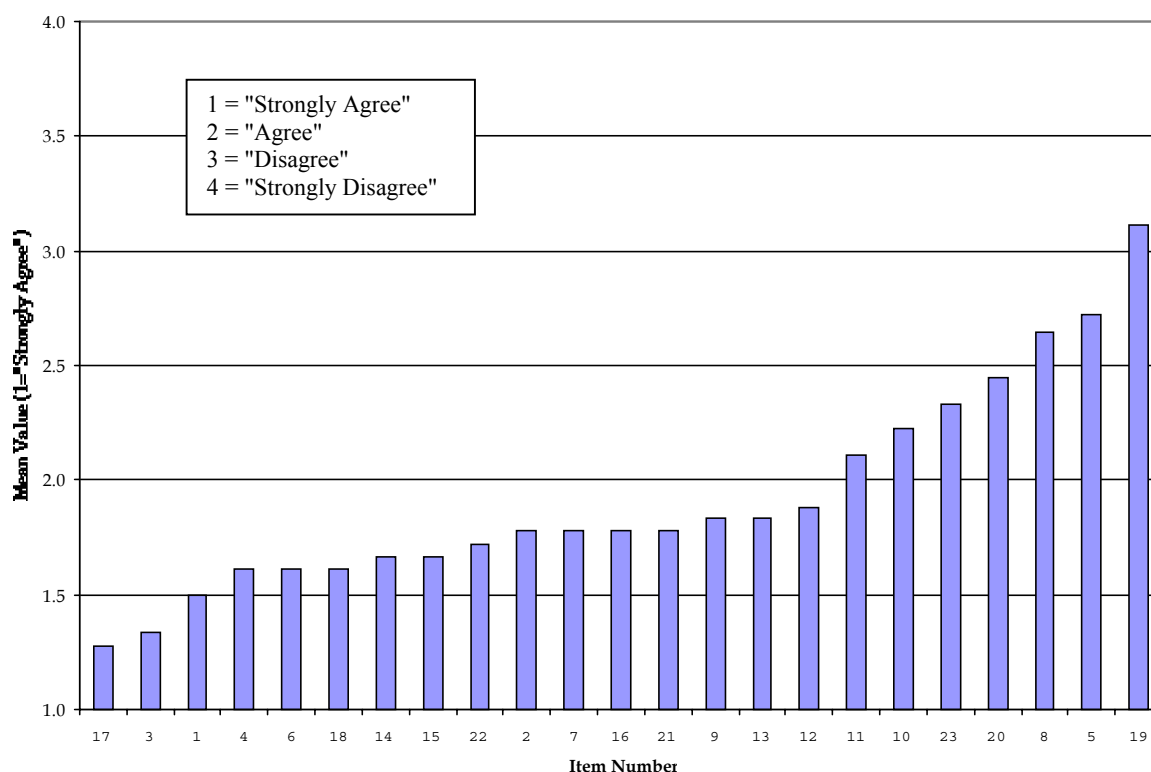
Figure 24 illustrates what we have already seen, that is, strong agreement with the top ranking items. This perspective also shows that general agreement is bounded essentially by item number 17 at the top of the ranking and item number 12 at a breakpoint. A trend biased toward disagreement is

suggested from item number 8 to the bottom of the rank order. These are worded in the negative, and therefore, disagreement is a positive result. This leaves the following items in the space between:

- Q11. The unit is sensitive to perspectives of diverse cultures and societies.
- Q10. Students who usually perform at higher levels ... were challenged to learn in this unit.
- Q23. Sufficient resource materials are provided with the unit.
- Q20. The students completed activities within the time periods allocated in the unit design.

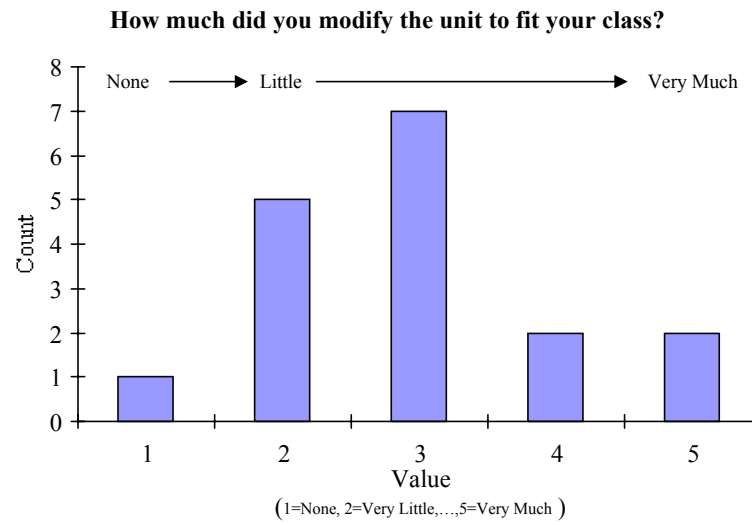
Relative to other features of the curricular materials, there is some disagreement that they: (1) are "sensitive to perspectives of diverse cultures and societies": (2) challenge higher-performing students; (3) provide sufficient resources; and, (4) allocate time realistically for activities. MAPS leaders will certainly want to examine the materials with respect to these features.

Figure 24: Rank Order Distribution of Curriculum Unit Feedback Responses



Finally, those teachers who reported implementing the units this year provided an average of 14 hours of instruction, typically spanning 12 school days. They tend to modify the materials to suit students' needs, reporting an average of 8 hours preparation time (see Figure 25).

Figure 25: Teachers' perception of the need to modify MAPS Curriculum Units.



6 Recommendations and MAPS Response

We take a liberty at this time to make an additional observation that does not seem to fit elsewhere in the structure set for this report. Although the Study had its focus on the participants' experience of this experimental year of MAPS, there is another group deserving of mention. The observation is this: the consistent presence and visible commitment of administrative-, curriculum-, and professional development leaders throughout the year was impressive. All meetings observed by the research team were attended by leadership, both from the Chicago Public Schools and from the Museums. (It was almost comical how some navigated the City in order to visit all four sites during workshop days!) Even workshop planning meetings, which might be seen as too mundane, benefited from the active participation of these individuals. An inference one might take from this, is that MAPS is indeed seen as a viable instrument for improving children's learning in the Chicago Public Schools and that Museum leaders are likewise compelled by this vision. This is encouraging.

Table 18: MAPS Lessons Learned - Year One²⁸

CHALLENGES	RESPONSES
MAPS teachers were scattered throughout the System and felt unsupported	In year two, there will be ten self-selected MAPS schools in each of the six regions
The time commitment required for MAPS overburdened existing museum staff	The year two budget will fund a MAPS-dedicated staff person for each participating museum
Curriculum units did not sufficiently cover special education and ESL needs	ESL and Special Education experts were added to the writing teams
The MAPS time commitment overburdened existing CPS staff	MAPS-specific positions were added to the budget
Original curriculum preparation time insufficient	New writing teams were established and units were upgraded
Curriculum presentation was boring	Units are being punched up and the format will be dramatically different. Capitalizing on the MAPS theme, materials will be presented in a knapsack which will include: A large map encapsulating each lesson, travel guides for teachers and students, passports and tickets (field trip bus vouchers)
Problems inherent in new partnerships surfaced	Frequent meetings, joint committees and ongoing communication
No shared vision of project goals	Vision and goals setting sessions were held with museum and CPS educators to shape and articulate a common goal

Another characteristic of MAPS is its demonstrated ability to self-correct and adapt. As the initiative progressed through the year, difficulties encountered were met with a distinct "can do" response and corrections or adjustments (even severe) were made. An example of this is the willingness on the part of MAPS leaders to honor the request of the Museum Educators to hold workshops at four sites

²⁸ Source: Dr. Carol Adams, MAPS Program Manager.

simultaneously rather than a single site as initially planned. Another example is found in the persistence of MAPS leaders to establish a viable means of communicating with (and among) participants. While this remains a challenge, it is acknowledged that earnest responses to participants' concerns were made throughout the year. Additional examples are provided in Table 18. This list, prepared by the Program Manager near the end of the program year, serves to illustrate the self-correcting characteristic of MAPS.

Recommendations from the MAPS Study are based on the following assumptions:

- ◆ The MAPS initiative is conceived as a scalable and viable engine of worthy school reform, not simply an auxiliary program among many others.
- ◆ Foundational to MAPS are exemplary curricular materials that are carefully aligned to learning standards and highly linked to relevant resources of Chicago's world-class museums and cultural institutions.
- ◆ Successful implementation of MAPS curriculum will require sustained support of teachers including (but not limited to) exceptional professional development experiences held at the museums and particularly grounded in the understanding and implementation of MAPS curricular materials and museum resources.
- ◆ Attention to what should be learned from MAPS at all levels (i.e., for the program, community events, and individual classrooms) is necessary to establish accountability and credibility at each level as well as to inform progressive development and scale-up. Thus, actionable research, evaluation, and assessment must be developed as an integral characteristic of the initiative.
- ◆ MAPS must develop as a capable and carefully structured organization with distinct identity yet seamlessly integrated into related structures of Museums in the Park, the individual museums, and in the Chicago Public Schools system.

Based on these assumptions and the participants' experience of MAPS illustrated throughout this report, recommendations — and challenges — for the progressive development of MAPS include:

- ◆ Preparation of the Strategic Plan and especially of the MAPS 2001 schedule, timeline, and key events must attend more carefully to systemic realities and contextual influences. This work should begin as early as possible and should involve (at least) representatives of key stakeholders. Avoid, for example, setting events in conflict with district grading periods and testing periods. Seek ways to establish maximally effective, regular, and timely communication with all participants. Establish tangible commitment of participants and their supervisors (i.e., principals) with benefits of participation clearly understood and, possibly, rational consequences for failure.
- ◆ The history of curriculum materials development indicates that it is an expensive, demanding, and time consuming process requiring extensive and diverse skill sets. Especially today, with highly diverse communities and with the rapid development of technology-based and

interactive media, entire new skills are required²⁹. It may be productive for MAPS to identify an experienced partner organization who can lend resources and provide accelerated development and media enhancement to the materials. There may also be advantage to simply have the set of current materials reviewed by a credible organization³⁰.

- ◆ Continue to develop the linkage of MAPS curriculum and professional development activities to standards. The MAPS Passport, for example, might have more than a "visa", per se, as in "I went to the museum." Instead, the MAPS Passport concept could be a means of connecting to learning standards as in documenting "I learned that..." (i.e., a journal).
- ◆ It is not yet possible to determine the extent to which professional development and on-going support is required in order to guarantee that teachers (in general) will successfully implement MAPS instructional strategies and materials. However, an extensive literature does exist on the topic. Therefore, it is recommended that strategic planning very carefully consider published standards for professional development. Of particular relevance are the National Science Education Standards (National Research Council (U.S.), 1996) as they provide coherent professional development standards, program standards, and system standards (in addition to teaching standards and content standards). Other documents are also highly relevant (Loucks-Horsley, Hewson, & Stiles, 1996; National Council of Teachers of Mathematics, 2000; National Staff Development Council (U.S.) & National Association of Elementary School Principals (U.S.), 1995; Project 2061 (American Association for the Advancement of Science), 1993).
- ◆ Congruent with the previous recommendation, it is suggested that MAPS articulate its instructional model or approach. What does teaching MAPS successfully look like in the classroom? What is the teacher doing? The students? What does the learning environment look like? Clarification of an instructional model, approach, or referent, may promote coherence across the professional development settings, the classroom, and field experiences. An instructional model which seems compatible, for example, is Problem-Based Learning (Sage & Torp, 1997).
- ◆ A particular challenge for MAPS 2001 will be development of appropriate and credible assessment. An approach worth exploring is to embed common assessments within the curriculum materials themselves. There would be particular value if these assessments were so carefully constructed as to provide aggregated data across the MAPS initiative. Such instruments would assess students' performance but also the teachers' approach to implementation and relevant contextual influences.
- ◆ The MAPS initiative may be well served by establishing its academic grounding. A number of perspectives are possible, but it seems that the greatest need is to set forth as a credible publication³¹, the rationale for MAPS as a viable education reform initiative. The criteria for the MAPS instructional model (above) could be published as well. A similar need (see page 34) is to describe the MAPS professional development model, especially how support for teachers is to be sustained over time and how the model is expected to reach scale.

²⁹ In addition to commercial publishers, examples of organizations with extensive experience in curriculum materials development include, for example, the National Science Foundation's Instructional Materials Development program, TERC, Education Development Center, Inc, and the Curriculum Research and Development Group at the University of Hawaii.

³⁰ For example, Project 2061, the mathematics and science reform initiative of the American Association for the Advancement of Science (AAAS), has developed an extensive curriculum materials review procedure. Contact the author of this report for information about IMSA2061, the new partnership of Project 2061 and the Illinois Mathematics and Science Academy.

³¹ This could be accomplished as a commissioned white paper or an article in a credible journal, for example.

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8 Appendices

The appendices contain the instruments used in the MAPS Study, the design document for the MAPS Wrap Up Event, and sample participant responses for each major event.

8.1 APPENDIX A: INSTRUMENTS

Instruments are organized in chronological order according to the event at which they were used. The software package used for the design, scanning, and verification of data is Cardiff TELEForm 6.1. Adobe Acrobat 4.0 was used to create Portable Document Format (PDF) versions of the instruments for insertion in this report. Note that printing of the instruments from this report may result in lower quality and distortions that in turn will reduce the reliability of electronic data reading. It is much preferred to print new forms directly from the TELEForm designer module. Also, versions of instruments (with repeated items) produced later in the Study year tend to have been improved with respect to early versions. This is especially true, for example, for the Curriculum Unit Survey. Thus, for the purpose of continuation of the MAPS study, it is suggested that more recent versions of TELEForm Designer instruments be used as templates for new instruments.

8.1.1 MAPS Impressions 991029

This instrument was intended for the collection of demographic information and participants' general impressions of the MAPS Kick Off Event. The instrument was used for all participants, both the first-year CPS teachers and those second-year teachers of grades three through six who were participating in MAPS.



MAPS

Museums and Public Schools

A new direction for teaching Chicago's Children

Complete this survey and turn it in at sign-out.

Thank you for sharing your impressions!

Kickoff and Orientation Program

October 29, 1999

1. What sessions did you attend? Print the code from your name tag here:

	-		
--	---	--	--

2. We ask for demographic information in order to determine how well groups were represented.
How do you describe your demographics?

- ☐ Male
☐ Female

- ☐ Black or African American
☐ American Indian or Alaska Native
☐ Native Hawaiian or Other Pacific Islander

- ☐ Hispanic or Latino
☐ White (not Hispanic or Latino)
☐ Asian

3. For how many years have you been teaching for Chicago Public Schools (include this year)?

--	--

4. For how many years have you been teaching in total (include this year)?

--	--

5. What grade(s) do you currently teach?

P	K	1	2	3	4	5	6	7	8	9	10	11	12
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Strongly Agree

Agree

Disagree

Strongly Disagree

Mark your degree of agreement with each of the statements...

1	2	3	4
1	2	3	4
1	2	3	4
1	2	3	4

6. The day was well organized.
7. This experience was worth my time and effort.
8. I see how this experience will also benefit my students.
9. Overall, this day exceeded my expectations.

Strongly Agree

Agree

Disagree

Strongly Disagree

Overall, this session was very worthwhile ...

1	2	3	4
1	2	3	4
1	2	3	4
1	2	3	4

- Opening Ceremony
--- Morning Session(s) - Group A Panel Discussion, Group B Breakouts, Group C Meetings
--- Afternoon Session(s) - Group A Breakouts, Group B Panel Discussion, Group C Meetings
--- Reception and Closing Program

Comments

--

8.1.2 MAPS Teachers v3 991029

The MAPS Teachers Questionnaire provides extended demographic information for the MAPS teacher participants. In addition, it contains items that are combined to provide scale scores indicating standards-based beliefs and teaching practices. These data potentially provide a baseline for the longitudinal study of impact of the MAPS initiative on teachers' beliefs and practices. Analysis of these scales was expected to become relevant beginning with Year 2 of the Study. However, drastic changes in the selection of teachers and the anticipation that participation rates will significantly improve create doubts that the first year's data provide a viable baseline. It is recommended however, that these items be retained in the MAPS Study. The first year data may have utility as a pilot study to validate the instrument and scales for this particular sample.



MAPS

Museums and Public Schools

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Kickoff and Orientation Teacher Questionnaire

October 29, 1999

Reflecting on my Teaching and Student Learning

1. We ask for your name and school name in order to know how to contact you about MAPS.

First Name

Last Name

School Name

2. We ask for demographic information in order to determine how well groups were represented.
How do you describe your demographics?

☐ Male

☐ Female

☐ Black or African American

☐ American Indian or Alaska Native

☐ Native Hawaiian or Other Pacific Islander

☐ Hispanic or Latino

☐ White (not Hispanic or Latino)

☐ Asian

3. How many years have you been teaching for Chicago Public Schools (include this year)?

4. How many years have you been teaching in total (include this year)?

5. What grade(s) do you currently teach?

☐ P ☐ K ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12

6. For which grades are you certified?

☐ P ☐ K ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9 ☐ 10 ☐ 11 ☐ 12

7. What are your areas of study and degrees earned? (e.g., social studies, education, mathematics, etc.)

☐ Bachelor's
☐ Master's
☐ Doctorate

Bachelor's Degree Major

Bachelor's Degree Minor

Master's Degree Major

Master's Degree Minor

8. How many times have you been to a museum in the past 12 months (including today)?

1 2 3 4 >
☐ ☐ ☐ ☐ ☐

Strongly Agree

Agree

Disagree

Strongly Disagree

Please indicate your degree of agreement with each statement...

☐ ☐ ☐ ☐
☐ ☐ ☐ ☐
☐ ☐ ☐ ☐
☐ ☐ ☐ ☐
☐ ☐ ☐ ☐

9. Participation in MAPS is important to me as a professional teacher.

10. Aligning my curriculum to the Learning Standards is good for my students.

11. I see how this MAPS experience will also benefit my students.

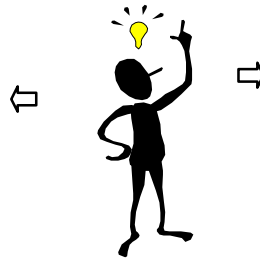
12. I use museum resources in my classroom.

13. I am looking forward to using the MAPS Modules in my classroom.



Don't forget the other side!

Indicate how important you think each item is for effective classroom instruction **in general**.



Indicate how often these events occur in **your classroom**.

Important
Somewhat Important
Somewhat Unimportant
Unimportant

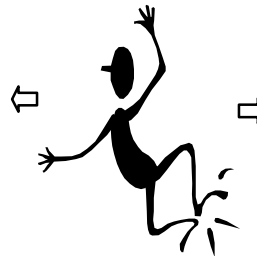
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

1. I use open-ended questions.
2. I encourage questions from my students.
3. I provide time for my students to discuss subject-specific ideas among themselves.
4. In my class, students draw on information and resources from other subject areas.
5. My students perform laboratory experiments or use manipulatives.
6. My students use data to justify responses to questions.
7. My students consult one another as sources for learning.
8. My students keep written accounts about what they are thinking and learning.

Almost Always
Often
Sometimes
Seldom
Never

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Indicate how important you think each item is for effective classroom instruction **in general**.



Indicate how much you agree that these occur in **your classroom**.

Important
Somewhat Important
Somewhat Unimportant
Unimportant

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

9. I encourage students to use perspectives from different subject areas.
10. I require students to supply evidence to support their claims.
11. I encourage my students to consider the implications of their conclusions.
12. I assess my students' abilities to apply what they learn to new situations.
13. I design learning experiences around real-world problems.
14. I plan learning experiences that connect subject areas.
15. I am well versed in the Illinois and/or national standards for the area I teach.
16. I focus my teaching on meeting the Illinois Learning Standards.
17. My students investigate relevant applications of mathematics or science.
18. My students repeat experiments to confirm results.
19. My students develop their own ways to solve challenging problems.
20. My students evaluate the validity of information found in various sources.

Strongly Agree
Agree
Disagree
Strongly Disagree

<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Thank you!

8.1.3 MAPS Workshop 000121

This is a general impressions questionnaire for the first MAPS workshop.



MAPS

Museums and Public Schools

A new direction for teaching Chicago's Children

Workshop Feedback Questionnaire

January 21, 2000

Reflecting on this Professional Learning Opportunity

1. What is the location is this workshop?

- ☐ Chicago Historical Society (grade 3)
- ☐ Art Institute of Chicago (grade 4)
- ☐ Peggy Notebaert Nature Museum (grade 5)
- ☐ Field Museum / Adler Planetarium (grade 6)

2. How many times have you been to a museum in the past 12 months (including today)?

- | | | | | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | >7 |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Strongly Agree

Agree

Disagree

Strongly Disagree

Please indicate your degree of agreement with each statement...

- | | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|--|
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | 3. Participation in MAPS is important to me as a professional teacher. |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | 4. Aligning my curriculum to the Learning Standards is good for my students. |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | 5. I see how this MAPS experience will benefit my students. |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | 6. I use museum resources in my classroom. |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | 7. I am looking forward to using the MAPS Units in my classroom. |

This workshop...

- | | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|---|
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | 8. favorably met or exceeded my expectations. |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | 9. stimulated my thinking. |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | 10. increased my desire to learn. |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | 11. provided useful information. |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | 12. will benefit my teaching. |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | 13. contributes to the improvement of my school's curriculum. |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | 14. was worth my time and effort. |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | 15. was well organized. |

16. What are your general impressions of this workshop experience?

8.1.4 MAPS Workshop 000331d

This instrument includes both the general impressions items for the second MAPS workshop as well as the standards-based teaching practices scales (baseline) items. Notice that this was to have been utilized as a repeated measures (growth trajectory) design. However, the low turnout and instability of the sample prohibited this. In addition, the decision to conduct the MAPS workshops simultaneously at four independent sites introduced potentially confounding variables. For example, there were different instructional teams, different curricular materials, and different agendas at each location. The design may be more plausible in the subsequent year.



MAPS

Museums and Public Schools

A new direction for teaching Chicago's Children

Workshop Feedback Questionnaire

March 31, 2000

Reflecting on this Professional Learning Opportunity

1. What is the location is this workshop?

- ☐ Museum of Science & Industry (grade 3)
☐ Art Institute of Chicago (grade 4)
☐ DuSable Museum (grade 5)
☐ Field Museum (grade 6)

2. How many times have you been to a museum in the past 12 months (including today)?

- 1 2 3 4 5 6 7 8 9 10 >10
☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐ ☐

Strongly Agree

Agree

Disagree

Strongly Disagree

Please indicate your degree of agreement with each statement...

- ☐ ☐ ☐ ☐ 3. Participation in MAPS is important to me as a professional teacher.
☐ ☐ ☐ ☐ 4. Aligning my curriculum to the Learning Standards is good for my students.
☐ ☐ ☐ ☐ 5. I see how this MAPS experience will benefit my students.
☐ ☐ ☐ ☐ 6. I use museum resources in my classroom.
☐ ☐ ☐ ☐ 7. I am looking forward to using the MAPS Units in my classroom.

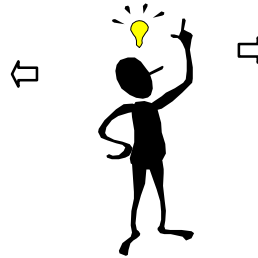
This workshop...

- ☐ ☐ ☐ ☐ 8. favorably met or exceeded my expectations.
☐ ☐ ☐ ☐ 9. stimulated my thinking.
☐ ☐ ☐ ☐ 10. increased my desire to learn.
☐ ☐ ☐ ☐ 11. provided useful information.
☐ ☐ ☐ ☐ 12. will benefit my teaching.
☐ ☐ ☐ ☐ 13. contributes to the improvement of my school's curriculum.
☐ ☐ ☐ ☐ 14. was worth my time and effort.
☐ ☐ ☐ ☐ 15. was well organized.

16. What is your assessment of the value of this day for your work?

Reflecting on Teaching and Student Learning

Indicate how important you think each item is for effective classroom instruction **in general**.



Indicate how often these events occur in **your classroom**.

Important
Somewhat Important
Somewhat Unimportant
Unimportant

Almost Always
Often
Sometimes
Seldom
Never

- | | | |
|------|---|--------|
| ○○○○ | 1. I use open-ended questions. | ○○○○○○ |
| ○○○○ | 2. I encourage questions from my students. | ○○○○○○ |
| ○○○○ | 3. I provide time for my students to discuss subject-specific ideas among themselves. | ○○○○○○ |
| ○○○○ | 4. In my class, students draw on information and resources from other subject | ○○○○○○ |
| ○○○○ | 5. My students perform laboratory experiments or use manipulatives. | ○○○○○○ |
| ○○○○ | 6. My students use data to justify responses to questions. | ○○○○○○ |
| ○○○○ | 7. My students consult one another as sources for learning. | ○○○○○○ |
| ○○○○ | 8. My students keep written accounts about what they are thinking and learning. | ○○○○○○ |

Indicate how important you think each item is for effective classroom instruction **in general**.



Indicate how much you agree that these occur in **your classroom**.

Important
Somewhat Important
Somewhat Unimportant
Unimportant

Strongly Disagree
Disagree
Agree
Strongly Agree

- | | | |
|------|--|------|
| ○○○○ | 9. I encourage students to use perspectives from different subject areas. | ○○○○ |
| ○○○○ | 10. I require students to supply evidence to support their claims. | ○○○○ |
| ○○○○ | 11. I encourage my students to consider the implications of their conclusions. | ○○○○ |
| ○○○○ | 12. I assess my students' abilities to apply what they learn to new situations. | ○○○○ |
| ○○○○ | 13. I design learning experiences around real-world problems. | ○○○○ |
| ○○○○ | 14. I plan learning experiences that connect subject areas. | ○○○○ |
| ○○○○ | 15. I am well versed in the Illinois and/or national standards for the area I teach. | ○○○○ |
| ○○○○ | 16. I focus my teaching on meeting the Illinois Learning Standards. | ○○○○ |
| ○○○○ | 17. My students investigate relevant applications of mathematics or science. | ○○○○ |
| ○○○○ | 18. My students repeat experiments to confirm results. | ○○○○ |
| ○○○○ | 19. My students develop their own ways to solve challenging problems. | ○○○○ |
| ○○○○ | 20. My students evaluate the validity of information found in various sources. | ○○○○ |

Thank you!

8.1.5 Mapping MAPS 000622

This document was used to obtain participant's self-report of participation in activities and events. Events selected are the scheduled MAPS events. The activities during the interim periods were selected to represent the intentions of the MAPS design, although this was never documented. The expectation was that teachers would plan and implement the MAPS curriculum units.

Implementation of the units was expected to include in-class preparation of the students, a visit to a museum, and follow-up activities back in class. Therefore, the Mapping MAPS document was intended to contain the maximum extent to which teachers (and other contributors) might have participated in MAPS. In addition, it provides the focus questions, correlated to the MAPS Study Questions, to facilitate MAPS Wrap Up Event participant reflection.

Museums and Public Schools (MAPS) Study

"Mapping MAPS"

May 31, 2000

Name (please print): _____

Did it? Station	MAPS TIMELINE	DATE	FOCUS QUESTIONS
<input type="radio"/>	1. MAPS Development Summer '99 <input type="radio"/> MAPS Concept/Model Development <input type="radio"/> MAPS Program Design & Planning <input type="radio"/> Resource Development (funds, personnel) <input type="radio"/> Curriculum Design & Development <input type="radio"/> Marketing & Teacher Recruitment		<ul style="list-style-type: none"> •What is the MAPS Program designed to accomplish? •What was working well during this development period? How do we know this? •What was <i>not</i> working well? How do we know this? •How might development work be done better?
<input type="radio"/>	2. MAPS Kick Off! Event 10/29/99 Introduction to MAPS		<ul style="list-style-type: none"> •What factors influenced your interest in MAPS? •What do you see as the strengths of the program? •How can an introduction to MAPS be most effective?
<input type="radio"/>	3. Interim: Planning & Preparation <input type="radio"/> Program Management <input type="radio"/> Resource Development (funds...) <input type="radio"/> Curriculum Development <input type="radio"/> Marketing & Communication <input type="radio"/> Workshop I Design/Planning <input type="radio"/> MAPS Study Development other: _____ _____ 61 week days		<ul style="list-style-type: none"> •What are the MAPS Units designed to accomplish? •What were you doing with/for MAPS at this time? •What were students doing? •What was (your) school leadership doing? •How could this period of time be used most effectively?
<input type="radio"/>	4. Workshop I 01/21/00 Workshop I make-up 02/17/00		<ul style="list-style-type: none"> •What motivated you to attend this MAPS Workshop? •What did this workshop accomplish? •How can the MAPS inservice be most beneficial?
<input type="radio"/>	5. Interim & Student Learning I <input type="radio"/> Prepare to Teach MAPS Unit <input type="radio"/> Student Immersion in MAPS Unit <input type="radio"/> Student Museum Visit(s) <input type="radio"/> Student Extension of MAPS Unit <input type="radio"/> MAPS Curriculum Development <input type="radio"/> Workshop II Design/Planning <input type="radio"/> MAPS Curriculum Development <input type="radio"/> MAPS Study Development 51 week days		<ul style="list-style-type: none"> •What were you doing with/for MAPS at this time? •What were students doing? •What were school leaders doing? •In what ways did you use these MAPS Units? •What is your impression of the quality of these Units? •What is needed to successfully implement MAPS?
<input type="radio"/>	6. Workshop II 03/31/00 Introduction to new MAPS Units		<ul style="list-style-type: none"> •What motivated you to attend this MAPS Workshop? •What did this workshop accomplish? •How can the MAPS inservice be most beneficial?
<input type="radio"/>	7. Interim & Student Learning II <input type="radio"/> Prepare to Teach MAPS Unit <input type="radio"/> Student Immersion in MAPS Unit <input type="radio"/> Student Museum Visit(s) <input type="radio"/> Student Extension of MAPS Unit <input type="radio"/> MAPS Curriculum Development <input type="radio"/> MAPS Wrap-up Design/Planning <input type="radio"/> MAPS Curriculum Development <input type="radio"/> MAPS Study Development 44 week days		<ul style="list-style-type: none"> •What were you doing with/for MAPS at this time? •What were students doing? •What were school leaders doing? •In what ways did you use these MAPS Units? •What is your impression of the quality of these Units? •What is needed to successfully implement MAPS?
<input type="radio"/>	MAPS 2000 Wrap-up Event 05/31/00 Closure for MAPS2000, on to 2001!		Amazing!

8.1.6 MAPS 000531a

This is the final version of the standards-based practices scales. Again, this is to provide baseline data for ongoing study of the MAPS program.



MAPS

Museums and Public Schools

A new direction for teaching Chicago's Children

Museums and Public Schools

Wrap Up Event, March 31, 2000

Reflecting on Teaching and Student Learning

First Name

Last Name

Indicate how important you think each item is
for effective classroom instruction **in general**.

Indicate with respect to
your classroom.

Important
Somewhat Important
Somewhat Unimportant
Unimportant

Almost Always
Often
Sometimes
Seldom
Never

- | | | | | | | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|---|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | 1. I use open-ended questions. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | 2. I encourage questions from my students. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | 3. I provide time for my students to discuss subject-specific ideas among themselves. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | 4. In my class, students draw on information and resources from other subject areas. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | 5. My students perform laboratory experiments or use manipulatives. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | 6. My students use data to justify responses to questions. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | 7. My students consult one another as sources for learning. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | 8. My students keep written accounts about what they are thinking and learning. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Important
Somewhat Important
Somewhat Unimportant
Unimportant

Strongly Disagree
Disagree
Agree
Strongly Agree

- | | | | | | | | | |
|-----------------------|-----------------------|-----------------------|-----------------------|--|-----------------------|-----------------------|-----------------------|-----------------------|
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | 9. I encourage students to use perspectives from different subject areas. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | 10. I require students to supply evidence to support their claims. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | 11. I encourage my students to consider the implications of their conclusions. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | 12. I assess my students' abilities to apply what they learn to new situations. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | 13. I design learning experiences around real-world problems. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | 14. I plan learning experiences that connect subject areas. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | 15. I am well versed in the Illinois and/or national standards for the area I teach. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | 16. I focus my teaching on meeting the Illinois Learning Standards. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | 17. My students investigate relevant applications of mathematics or science. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | 18. My students repeat experiments to confirm results. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | 19. My students develop their own ways to solve challenging problems. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | 20. My students evaluate the validity of information found in various sources. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

8.1.7 MAPS Personal Reflection 000531

These questions were written to correlate with MAPS Study Questions. Participants completed these items at the conclusion of the MAPS Wrap Up Event, after having spent considerable time reflecting on and discussing the focus questions.

MUSEUMS AND PUBLIC SCHOOLS (MAPS) STUDY

PERSONAL REFLECTION QUESTIONS MAPS WRAP-UP EVENT, MAY 31, 2000

1. In what ways was your participation in the MAPS program of professional importance to you (if possible, please provide specific examples)?

2. In what ways have your work habits and/or priorities changed as a result of your involvement in MAPS?

3. In what specific ways can the MAPS Program be improved?

Please continue to other side.

4. What are your plans for using the MAPS Units next year?

☐ Check here if this question does not apply to your role.

5. What are your plans for using the museums or museum resources in your curriculum next year?

☐ Check here if this question does not apply to your role.

6. In what ways will you use the museums or museum resources differently than you did before MAPS?

☐ Check here if this question does not apply to your role.

7. Any other thoughts, concerns, or ideas?

8.1.8 MAPS Unit 000330

This is the second (improved) version of the Curriculum Unit Feedback Questionnaire. This form was administered at the Kick Off Event and is the version reported here. Criteria for the third-party evaluation of the curriculum materials were used to guide the development of this tool. In addition, the reader will notice that relevant MAPS Study Questions are also represented.

Curriculum Unit Feedback Survey

Today's Date

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 /

--	--

 /

0	0
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Please print with care. Thank you!

First Name

Last Name

School Name

Unit Title (Print the title of this MAPS Curriculum Unit)

1. What date did you **start** teaching this unit?

2. What date did you **stop** teaching this unit?

$$\boxed{} \boxed{} / \boxed{} \boxed{} / \boxed{} \boxed{}$$

3. How many school days did you use this unit with students for 30 minutes or more?

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4. How many **total** HOURS, including time in museums, did your class spend on this unit?

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5. How many hours did you spend preparing to teach, on average, for each day (activity)?


--	--

6. How many hours did your students spend **in museums** during this unit?

--	--	--

7. How much did you modify the unit to fit your class (1 = None, 2 = Very Little, ..., 5=Very Much)? ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5

8. What are your impressions of this unit?



Don't forget the other side!

Curriculum Unit Feedback Survey (continued)



Indicate the level of
your agreement with each
statement.

Strongly Disagree
Disagree
Agree
Strongly Agree

1. This unit addresses the topic soundly.
2. The materials contain no errors in the information provided.
3. The students showed a high level of interest in the unit.
4. The unit contains the right kind of information for this topic.
5. The unit was too difficult for some students.
6. The students were motivated to learn.
7. The materials accommodate different learning styles.
8. There is too much information in the unit.
9. There is a good balance between skill development, concepts, and factual information.
10. Students who usually perform at higher levels in class were challenged to learn in this unit.
11. The unit is sensitive to perspectives of diverse cultures and societies.
12. Students learned language arts as described in the learning standards for this grade level.
13. Students learned mathematics as described in the learning standards for this grade level.
14. Students learned science as described in the learning standards for this grade level.
15. Students learned social studies as described in the learning standards for this grade level.
16. This unit caused students to examine relationships among the content areas.
17. If teaching the same grade level, I intend to use this unit again next year.
18. This unit demonstrates exemplary use of museum resources for student learning.
19. It was difficult to teach this unit because the directions were not clear.
20. The students completed activities within the time periods allocated in the unit design.
21. Students who tend to have difficulty in class were successful in this unit.
22. It is not difficult for the teacher to use this unit successfully.
23. Sufficient resource materials are provided with the unit.

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8.2 APPENDIX B: MAPS WRAP UP EVENT DESIGN

Museums and Public Schools (MAPS) Study

Design and Agenda for the May 31, 2000 Wrap-Up Event

CONTEXT:

The MAPS program has completed its first experimental year and has secured funding to advance the design of the project and plans to significantly scale up implementation of the effort. A vision and planning retreat immediately follows this morning session.

OBJECTIVES:

- ❖ To provide a forum for all MAPS contributors and participants to gain insight from the perspectives of the others. What is working well and how do we know this? What is not working so well and how do we know? What might we do better?
- ❖ To provide authentic data around the MAPS Study Guiding Questions.
- ❖ To inform and to set the stage for the afternoon planning retreat.

FACILITIES

A single large group room with seating for 100 as well as space around the walls to allow movement around the perimeter. Activities may create some volume of sound. Sound system with lavalier microphones preferred. Projection screen. Versatile lighting (bright to dim controls) is required to support both presentation and small group work. A location suitable for serving lunch is needed afterwards.

PARTICIPANTS

We expect up to 70 teachers, 22 Museum Educators, 10 MAPS Administrators, and 3 meeting facilitators.

APPROACH

Promote clarity about the MAPS concept, program, and its ultimate potential. For the benefit of participants, displays should be highly visual. Design to elicit *actionable information and ideas* focused on *rational solutions*. We anticipate that the dialog will generate diverse and relevant thinking on a variety of contributor and participant concerns including:

- ❖ Suggestions for enhancing planning and organization
 - ◆ maximize participation rates and commitment
 - ◆ deepen understanding of the relevance of materials and activities
 - ◆ increase accessibility to, and understanding of the materials and museum resources
- ❖ Ideas for improving communication and networking
- ❖ Strategies for advancing the quality of materials and professional development
- ❖ Possibilities for refining implementation in classrooms and museums.
 - ◆ student advantages
 - ◆ system advantages

MAPS WRAP-UP SESSION AGENDA:

<i>Time¹</i>	<i>Activity</i>	<i>Resources</i>
8:00	<u>Reception</u> (with Continental Breakfast) <ul style="list-style-type: none"> ❖ Sign-in. Validate Parking. Get team assignment; each with teachers, museum educator(s), administrator(s). ❖ Teachers complete <i>MAPS Curriculum Feedback Survey</i> and <i>MAPS Teacher Survey</i>. 	<input type="checkbox"/> MAPS folders (100) <input type="checkbox"/> Agenda (100) <input type="checkbox"/> <i>MAPS Curriculum Survey</i> (60) <input type="checkbox"/> <i>Teacher Survey</i> (60)
8:45	<u>Welcome:</u> (Prepare the Learners) <ul style="list-style-type: none"> ❖ MAPS/CPS dignitaries greet participants and establish the importance of the MAPS program and this day. 	<input type="checkbox"/> Digital Camera <input type="checkbox"/> IMSA Workshop Survival Kit
9:00	<u>Setting the Stage:</u> (Meet the Problem) <ul style="list-style-type: none"> ❖ How can we determine the value of this MAPS pilot in such a way that we build a successful new project (with respect to the MAPS vision); including increases in: participation, implementation, student learning, museum usage, participant networking, funding, etc. 	<input type="checkbox"/> Video: <i>Bolero</i> <input type="checkbox"/> Boxlight™ Projector <input type="checkbox"/> VCR <input type="checkbox"/> Projection Screen <input type="checkbox"/> <i>Mapping MAPS</i> document (100)
9:15	<u>A Walk Through MAPS:</u> (Gather and Share Information) <ul style="list-style-type: none"> ❖ Teachers, museum educators, MAPS leadership walk through the 7 stations. Each station represents, in chronological order, a MAPS activity, period, or event. Using the color coded (by role) Postit™ Notes, participants describe the ways they engaged in MAPS and impressions of these experiences. Each station will feature a display of focus questions as well as a display of MAPS Study data relevant to that station. 	<input type="checkbox"/> Pens (100) <input type="checkbox"/> Postit™ Note Pads Blue: Teachers (60) Pink: Educators (20) Yellow: Admin. (20) <input type="checkbox"/> Project Boards (7) <input type="checkbox"/> Focus Questions Displays <input type="checkbox"/> MAPS Study Results Displays
10:15	<u>Cluster and Label:</u> (Exploring the Data) <ul style="list-style-type: none"> ❖ Divide into the 7 teams as assigned at registration. ❖ Team is sent to a station to look for both patterns and variation in the Notes. Cluster and provide descriptive labels for the emergent themes. Visit other stations². 	<input type="checkbox"/> Colored Markers (7 boxes of 6 assorted colors)
10:30	<u>Prioritize:</u> (Model Building) <ul style="list-style-type: none"> ❖ Participants “Walk through MAPS” again, this time posting color coded stickers at the themes that they are most important, important if revised, or not important. ❖ Teams return to their stations for the next step... 	<input type="checkbox"/> Dot Stickers: Green: Thumbs-up! Yellow: OK if fixed. Red: Thumbs-down.
11:00	<u>Report Out:</u> (Summary and Possible Solutions) <ul style="list-style-type: none"> ❖ Teachers report 3 team findings from the station. ❖ Suggestions, findings, inferences are recorded publicly. 	<input type="checkbox"/> Laptop Computer (projected) <input type="checkbox"/> Portable Printer
11:30	<u>Personal Reflection:</u> <ul style="list-style-type: none"> ❖ In what ways is MAPS professionally important for <u>me</u>? 	<input type="checkbox"/> Form for recording and collection (100)
11:45	<u>Closure</u> & Break for Recognition Luncheon	<input type="checkbox"/> some tokens of appreciation

¹ Tentative time “targets” are in italics. Other times are firm.

² MAPS EC members also write a response at this time to the Focus Question(s) at their station.

8.3 APPENDIX C: PARTICIPANT COMMENT SAMPLES

Participant comments were selected for illustrative purposes. The full number of comments received is reported for each event. In the case of Workshop I, 25 representative comments were randomly selected from the full list. Randomization was accomplished by means of numbering with a uniform distribution random number generator and sorting the list. The first 25 in the list were selected.

8.3.1 Workshop I Sample Participant Comments

(Representative 25 randomly selected from 56 total responses.)

- This group did a nice job of getting all of us involved in the activities. This is a true reflection of what could happen in our classrooms. Thanks!!
- This was the BEST workshop I've ever been to in my 8 years of teaching (6yrs at Catholic Schools). The presenters were interesting, organized, professional, helpful and courteous. I'm so glad I was part of today's workshop. Great lessons!
- I am very impressed and this innovated me to want to join in on the fun of Chicago's Museums. Thank you for an alternative route using our museums.
- The workshop itself was wonderful. It was a little frustrating to be guided to the wrong place at first. The curriculum materials look useful and I look forward to using it in my classroom.
- Overall the presentation and the plan for MAPS was very well thought out, prepared and executed. I look forward to teaching the lessons and using the museums.
- I found this workshop to be very useful. The tour was very educational (for myself). I am eager to begin working on the unit with my students.
- I liked that the workshop was small - gave us opportunities to ask questions and receive answers. Perhaps a sign on the door letting MAPS teachers know what entrance would have been helpful.
- It was very positive. The presenters had a great deal of energy and enthusiasm.
- I really enjoyed this workshop!
- I was impressed by the enthusiasm of the presenters.
- I like the open-ness towards the input of teachers' ideas towards improving the program...we possibly could have seen how more of the exhibits could tie into lessons.
- Great information - at times it seemed a little too "hurried" though. I do have concerns about logistics, especially Field Trip planning on short notice and filling schedules. Thanks!
- They did a great job. It was really a lot of helpful, useful information given.
- Fun, interesting, worthwhile, stimulating. Gave me great ideas.
- Much improved over the Oct. fiasco! Presenters and materials were very well prepared and will be very useful in the classroom. I look forward to using them! Thanks!
- I enjoyed this workshop a lot. Great job! Thank you.
- My experience here today was excellent. There were too many teachers at the 1st workshop. Small groups work much better.
- Superb and will be utilized ASAP. Thank you MAPS.
- Much better than last October!!! This workshop was more intimate (only 40 people), more organized, and well worth my time!
- The workshop was extremely interesting and down to earth. The lessons could be incorporated into our classrooms easily.
- I enjoyed the workshop. I especially like the fact that we actually did the lessons and all the great material given to us for free.
- Very organized. Fun group activities!
- I was very impressed! I am very excited to implement these lessons. I especially enjoyed when we were taking part in the lessons as "children". Really like the water passport. Everybody was very knowledgeable and gave good teaching tips. Would like more ideas on assessment. Some schools, like many CPS schools, are very heavy into assessing everything.
- The small group made it more enjoyable.

8.3.2 Workshop II Sample Participant Comments

(All 27 representing the total number returned.)

- Even though I came to the wrong museum (Oops!), I was with students who are in the normal age range of 5th and 6th graders. The lessons are well-written and coordinated with goals, standards, and statements.
- This is extremely valuable training/professional development. As a transplant to Chicago, I am lacking in historical knowledge. Today's lesson not only helped increase my knowledge base, but also provided me with a format to present this knowledge to my students.
- This day's activities were excellent in the preparation of the Migration Unit.
- I am looking forward to applying lessons in my classroom. Unfortunately, it will be used more next year than this year.
- This is more/less helpful on a teacher by teacher basis. I truly felt I did not need the teaching pointers. I do however relish the opportunity to ask questions and discuss options with other teachers about museum programs. Presenters from museums were very good.
- I really enjoy this MAPS program - well worth my time! Would like museums/MAPS to provide evaluations and activities for students while at museum. We always need paper for accountability.
- This session allowed me to connect Meso-America to my Ancient Civilization Unit. I found the resources and information (lesson plans) very valuable. Thank you.
- This unit is very valuable to me, in order to make the field trips meaningful. It gave me everything I needed!
- I would've preferred to do my report cards since this day was set aside and have these materials sent to the teachers through the mail or have this workshop during a school day but not for the time that is allocated for report cards which takes several hours.
- These workshops will greatly benefit all teachers! I love hands-on vs. lectures.
- I think that it is extremely important to have programs such as MAPS. Programs such as this one promote desire to learn and improve our students' education.
- I thought the lessons and presentations taught today were very beneficial. My favorite part of the day was the Underground Adventure.
- Learned a lot of history today and some interesting information.
- The information/extra resources offered are wonderful and would enhance a student's learning experience greatly. However, in a school set-up like mine - where everything is assess, assess, assess - utilizing and incorporating a lot of this information is highly unlikely.
- This workshop was very informing, persuasive and well thought-out.
- I am excited to teach this unit and share it with my other 4th grade team members.
- The assessment was based on presentation which was good. Materials to use in the classroom.
- Great! It was an array of information and activities. I appreciate the fact that the materials are included.
- During this workshop I had the opportunities of receiving museum resources that will benefit my students (along with the Units), which will also stimulate thinking and will motivate students to learning. Great!
- As well as the other workshops, this one has benefited me the most. This workshop was very well organized.
- Excellent because of the hands-on practical examples of lessons.
- With each meeting the goals of this program have been more clearly defined. I understand and am excited about how these lessons will benefit my students and improve my own teaching methods.
- I have never been to the [name omitted] Museum before and I appreciate on-site workshops. I also greatly appreciate the materials and memberships - they are very encouraging - Chicago is a great place!
- I have so many ideas to incorporate museum resources into the classes.
- The most valuable part of today's activities was re-affirming the teacher over many curriculum parts/subjects.
- Today's experience was very valuable because it involved information not so readily available to our children and teachers though important.
- I thought it was a well-executed program. I'm looking forward to perusing the materials and resources more thoroughly. It has motivated me to "push the envelope" on my own teaching and curriculum.

8.3.3 MAPS Curriculum Units Sample Participant Comments

(All 16 representing the 18 returned. Two teachers did not complete this item.)

- Very good, but had to modify it to fit our curriculum because we have a very timely and strenuous set curriculum that we must follow. It is difficult to stray from it very much.
- Good unit – will use next year – given too late in the year to incorporate in 99/00. Would like 5th grade unit as well. I teach 5th and 6th grade science.
- Very thoughtful unit. Due to testing, it was very difficult to teach the unit in its entirety. I had to pick and choose and adapt based on available resources.
- The students found it to be lots of fun as well as informative. It takes dry information and makes it more fun.
- I loved it, and the kids loved it. The CD of the Chicago Fire was a big hit!! They also enjoyed designing their own neighborhoods and World's Fair buildings.
- I loved it – kids loved it. However, our units were already together so I only used DuSable information and Trading Post. Had to have material.
- For the most part, it went very well. I had to modify greatly the fur trading post activity as well as the “create a fair building” to better suit my group. They loved the Chicago Fire CD “Boomtown”! They asked to hear those songs again and again.
- I loved the Chicago History Unit. I loved the materials, especially the CD, Justin’s letter, DuSable’s Trading Post. Thanks Heidi.
- It was a great unit. I loved it, my kids loved it, and my principal loved it. They actually learned where water came from and where it goes. Students learn by doing. The human water cycle was the coolest.
- The unit was excellent, however there was not enough time to plan or implement it because of the ITBS.
- The unit was very helpful. It was a unit that involved students, which I believe is most important with students. Students learned more about the water cycle and our weather system. We did do a lot of supplemental things with students, but it all felt like a collaboration of activities which turned out for the better.
- I thought the unit was very good. I did not do every section of the unit but I did make some revisions. I think more local government should be added. I added bar graphs for skyscrapers and a timeline.
- I enjoyed implementing this unit in my classroom. I did find it problematic that I did not have enough resources (textbooks, trade books) to provide students with. Most of the information needed to be presented “lecture style,” then discussed. I also feel that more “traditional” or standard types of assessments (i.e. tests and quizzes) would be helpful to have included in the unit. I also think MAPS teachers should be given special consideration for museum time.
- Excellent.
- Impressed by multi-disciplinary aspect.
- The individual lessons in this unit are great! Due to time constraints, we were unable to go to the Nokbaert Museum which was disappointing. The unit was difficult to teach because I could not find all of the necessary materials and did not have time to order from Borders. Also, the sequence of the lessons was not succinct. It did not flow smoothly when taught.