ASSESSMENT AND INSTRUCTIONAL DECISION-MAKING IN MONTESSORI

EARLY CHILDHOOD CLASSROOMS

A Thesis

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ABSTRACT

The Montessori Method espouses observing students and making decisions based on those observations. Relevant literature establishes observation of children's daily experiences as the most appropriate means of assessment. This study followed a quantitative research design in order to examine assessment and instructional decision-making in Montessori early childhood classrooms. Participants consisted of Montessori early childhood educators in the San Francisco Bay Area of California. The results suggest that Montessori educators do approach assessment from a naturalistic perspective. However, the study identified ways in which Montessori educators can improve their assessment techniques. Further study may reveal in greater detail what observation, assessment, and decision-making actually look like in Montessori classrooms and could provide additional ideas about how to improve the process.

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CHAPTER I

INTRODUCTION

The Montessori community has long extolled the use of observation as the primary means for determining the best way to educate children. The basic curriculum and materials used by Montessori educators today were developed through direct observation of the children in the first Montessori Children's House over a century ago. Contemporary Montessori educators and teacher training programs continue to emphasize and train teachers in this vital assessment technique. Little is known, however, about what assessment techniques Montessori teachers are actually using in classrooms today.

This descriptive study followed a quantitative research design in order to examine assessment and instructional decision-making in Montessori early childhood classrooms. It attempted to describe what methods Montessori early childhood teachers use to collect information about their students, what processes they engage in when making decisions, and what their perceptions are regarding the level of support they receive for their assessment practices. The participants consisted of Montessori early childhood educators in the San Francisco Bay Area of California.

Based on his experiences as a Montessori educator, the researcher began with two hypotheses. The first was that many

Montessori early childhood teachers do not engage in an ongoing assessment cycle of collecting student data, analyzing student data, and then making decisions about instruction based on that data; they rely instead on other means for determining the presentation of curricula. The second hypothesis was that, of those teachers who do engage in the assessment cycle, most rely primarily on an informal and unstructured approach.

                        Statement of the Problem

Within the Montessori community there is a long established tradition of "following the child," using observation as the primary means of tailoring instruction to the needs of individual children. Lillard (1972) wrote how Dr. Montessori "determined that education must have a new goal: to study and observe the child himself from the moment of his conception. Only in this way can a new education based on aiding the inner powers of the child be developed…" (p. 49). At the same time, current literature shows an increased focus on developmentally appropriate assessment and instruction of young children among both the non-Montessori educational community and national policy-makers.

The increase in national attention on assessment and its potential to directly impact early childhood educators' practices has resulted in a number of studies that have

attempted to describe the current state of affairs in non-Montessori early childhood settings (Cromey & Hanson, 2000; Gettinger, 2001; Shepard, Taylor, & Kagan, 1996). In addition, organizations such as the National Association for the Education of Young Children (NAEYC) and the National Education Goals Panel (NEGP) have published both position and recommendation papers on the subject of assessment (NAEYC & NAECS/SDE, 2003; Shepard, Kagan, & Wurtz, 1998).

Despite these facts, there was a dearth of knowledge concerning what practices Montessori early childhood teachers adhere to when observing their students, assessing their development, and making instructional decisions. This study attempted to address this gap in the literature.

<div align="center">Background and Context</div>

There is broad consensus within the educational community regarding what constitutes developmentally appropriate assessment of young children. Briefly, assessment should consist of direct observation of the full range of early learning and development as it occurs in contexts that are both familiar and natural for children (Chittenden & Jones, 1998; Coutinho & Malouf, 1992; Gettinger, 2001; Grisham-Brown, Hallam, & Brookshire, 2006; Hills, 1993; NAEYC & NAECS/SDE, 2003; Niyogi, 1995; Shepard et al., 1998). Furthermore, past abuses of early childhood assessment as well as the perceived

weaknesses of standardized testing (Coutinho & Malouf, 1992; Shepard et al., 1998) have resulted in the development of clear standards for appropriate goals and uses of assessment of young children (NAEYC & NAECS/SDE, 2003; Shepard et al., 1998).

As will be discussed in greater depth in Chapter II, national organizations such as the NAEYC have actively developed and espoused their recommended practices regarding assessment and instruction of young children (NAEYC & NAECS/SDE, 2003). In addition, several systems have been developed to assist early childhood educators in the process of assessment and decision-making, such as the Work Sampling System® (WSS) and the Measurement and Planning System (MAPS) (Bergan & Feld, 1993; Meisels, 2003).

Though the sources cited above were not associated with Montessori, the literature indicated a similar focus on appropriate assessment of young children among professionals in the Montessori community. Lillard (1972) summarized Dr. Montessori's earlier writings when she described the approach as being "in the spirit of constant experimentation based on observation of the child" (p. 50).

In addition, the literature indicated that the conversation within the Montessori community was parallel to that within the non-Montessori community, though the former

tends to have fewer research-based publications. Turner
(1991), for example, emphasized direct observation in the
Montessori classroom, stating that it should be aligned with
program goals, inclusive of all areas of development,
longitudinal, and integral to the learning/teaching process.
Though she used somewhat different vocabulary, these are some
of the same characteristics noted by the NAEYC.

Furthermore, the Montessori community, too, has developed
assessment tools for use in the classroom. Though a full
comparison is beyond the scope of this review, Montessori
Records Xpress, for example, has uses and goals similar to the
WSS and MAPS mentioned above (Montessori Records Xpress,
2007). They integrate the curriculum with the assessment
system and have a primary goal of aiding in the
learning/teaching process.

Despite both the national focus on assessment practices
and the Montessori tradition of observation, however, the
researcher was unable to locate any published research on
current practices in Montessori early childhood classrooms.
There was no evidence that teachers within this community are
adhering to the tradition put forth by both its founder and
contemporary community leaders, nor was there evidence that
these teachers are basing their practices on established
guidelines for early childhood assessment and instruction.

Purpose

The purpose of this study, therefore, was to examine the assessment and decision-making practices of Montessori early childhood teachers. Specifically, the researcher attempted to answer the following questions:

1) With what frequency are teachers using the methods available to collect information about the children in their classrooms?

2) What information do teachers focus on if and when they make recorded observations?

3) What systems, if any, are currently in place in Montessori early childhood classrooms for recording and maintaining observations and other student data?

4) How frequently are teachers using recorded observations and other student data to inform their instructional decisions regarding individual children?

5) What processes, if any, are teachers using to link recorded observations and other student data with assessment and instructional decision-making?

6) What do teachers perceive are their greatest obstacles in engaging the assessment process?

Theoretical Framework

The framework used in this study to connect child development theory with classroom practices originated from the theories of Lev Vygotsky and Maria Montessori. Vygotsky's notion of the zone of proximal development and his concept of scaffolding were the central ideas in this study's view of early childhood development. The zone of proximal development is the narrow and yet dynamic range in which cognitive development and learning occur (Berk & Winsler, 1995). Scaffolding takes place when a child is helped to perform mental functions that are within his zone of proximal development (Berk & Winsler, 1995). In other words, scaffolding occurs when a teacher helps a child to perform nascent mental functions, which he or she is on the cusp of performing independently. The educator's responsibility, then, is to provide experiences that are challenging to the child but are achievable given the guidance and support of a sensitive adult. Given this understanding of the educator's role, it is crucial that he or she have a detailed, accurate and current picture of the cognitive development of each child under his or her care in order to maximize development.

Dr. Montessori herself was an active proponent of observing children in order to improve instruction. Lillard (2005) stated that in "the training courses that Dr.

Montessori designed, scores of hours of training are dedicated to observation: a trainee sits in a classroom, doing nothing but watching children and taking notes" (p. 331). Observation was a vital part of her educational approach, providing firm grounding for curricular decisions.

This study, therefore, examined current practices in Montessori early childhood classrooms in light of this theoretical background.

Assumptions

This study made one central assumption: Montessori teachers' presentation of curricula is not haphazard. That is that all teachers engage in some process of decision-making. Whether decisions are made on the basis of student information, a standardized curriculum schedule, or some other means, the researcher assumed that all teachers have some coherent basis for their decisions.

Definitions

The rhetoric surrounding assessment is continuously changing (Niyogi, 1995), so it is important to clearly define key terms as they are used in this study.

1. *Assessment*: "The process of observing, recording, and otherwise documenting the work children do and how they do it, as a basis for a variety of educational decisions that affect the child, including planning for groups and

individual children and communicating with parents"

(Bredekamp & Rosegrant, 1995, p. 16)

2. *Alternative Assessment*: A broad term indicating forms of

   assessment other than standardized, paper-and-pencil

   tests (Niyogi, 1995), e.g. authentic assessment,

   performance assessment, portfolios, observation, etc.

3. *Authentic Assessment*: Assessment that "takes place in the

   context of children's lived experience" (Meisels, 1993,

   p. 39)

4. *Curriculum*: "An organized framework that delineates the

   content that children are to learn, the processes through

   which children achieve the identified curricular goals,

   what teachers do to help children achieve these goals,

   and the context in which teaching and learning occur"

   (Bredekamp & Rosegrant, 1995, p. 16)

5. *Developmental Continuum*: "A continuum that describes

   typical milestones in children's growth and emerging

   capabilities according to age" (Shepard et al., 1998, p.

   37)

6. *Developmentally Appropriate Practice*: Educational

   practices that are appropriate for a given age group in

   light of the current understanding of childhood

   development

7. *Developmentally Appropriate Assessment*: Assessment that is appropriate for a given age group in light of the current understanding of childhood development

8. *Early Childhood*: Preschool and Kindergarten; in Montessori settings this is synonymous with the "primary classroom" which typically serves children between 3 and 6 years old

9. *Formal Assessment*: "A systematic and structured means of collecting information on student performance that both teachers and students recognize as an assessment event" (Shepard et al., 1998, p. 37)

10. *Informal Assessment*: "A means of collecting information about student performance in naturally occurring circumstances, which may not produce highly accurate and systematic results, but can provide useful insights about a child's learning" (Shepard et al., 1998, p. 37)

11. *Instructional Decision*: Any decision a teacher makes regarding presentation of curriculum

12. *Montessori*: Broadly defined as any school that self-identifies as following the Montessori method of education

13. *Naturalistic Assessment*: "Evaluation that is rooted in the natural setting of the classroom and involves

observation of student performance and behavior in a less

structured, more informal context" (Niyogi, 1995, p. 6)

14. *Observation*: "A systematic way to collect data by

watching or listening to students during an activity"

(Shepard et al., 1998, p. 38)

15. *Performance Assessment*: "Assessments that engage

students in more 'hands-on' type activities and require

them to create a product or construct a response"

(Niyogi, 1995, p. 6)

16. *Portfolio*: A "purposeful collection of children's work

that illustrates their efforts, progress, and achievement

and potentially provides a rich documentation of each

child's experience throughout a year" (Meisels, 1993, p.

37)

17. *Student Data*: A collection of useful information about a

student (NCES, 1994). Examples of content include

personal information, enrollment and attendance

information, school activities, non-school activities,

assessment information, health information, student

support services received, discipline information, and

anecdotal observations of behavior (NCES, 1994)

Methodology

This study followed a quantitative research design and
utilized a paper questionnaire for data collection.

Participants consisted of Montessori early childhood educators from Montessori schools in the San Francisco Bay Area, California, and were solicited to participate through mail, email and phone calls. Data from the questionnaire were analyzed using descriptive statistics.

CHAPTER II

REVIEW OF THE LITERATURE

Introduction

In 2004, 64.5 percent (7,969,000) of children three to five years old in the United States attended preprimary programs (National Center for Education Statistics, 2005), with this number expected to increase over the coming years (Pianta, 2007). In the United States in 2005, 3.6 million children were enrolled in public kindergarten programs (National Center for Education Statistics, 2007). Concurrently, the last decade has seen a strong national focus on developmentally appropriate practices regarding the education of young children, with an emphasis on assessment alternatives to standardized and norm-referenced testing. Recently, some states and cities have initiated a number of alternative assessment projects in an attempt to apply alternative assessment systems on a large scale.

While the national dialogue surrounding alternative assessment of young children is relatively recent, the traditional approach to Montessori education has espoused elements of alternative assessment for a century. Of particular importance was classroom observation.

In the training courses that Dr. Montessori designed, scores of hours of training are dedicated to observation:

a trainee sits in a classroom, doing nothing but watching

the children and taking notes, which are later

transcribed and read by the teacher trainer (Lillard,

2005, p. 331).

From its inception, the Montessori approach to education has

emphasized observation of children in the classroom and a

robust spirit of inquiry.

Currently, there is an intersection between the national

trend toward alternative assessment and the traditional

Montessori approach to curriculum and assessment. Yet despite

this convergence of ideas, the researcher found no literature

examining what assessment methods teachers are using in

Montessori early childhood classrooms. Whether or not

Montessori early childhood educators are following the

assessment path suggested by Dr. Montessori and now prescribed

by national organizations such as the National Association for

the Education of Young Children (NAEYC) is a question ripe for

research.

The purpose of this study, therefore, was to describe the

assessment and decision-making practices of Montessori early

childhood educators. It examined what methods Montessori early

childhood teachers are using to collect information about

their students, what processes they engage in when making

decisions, and what their perceptions are regarding the level of support they receive for their assessment practices.

Purpose and Overview

The purpose of this literature review is to provide a context for the results of this study. It first presents a theoretical framework linking child development theory with classroom assessment and then provides a general overview of assessment purposes and methods. The review briefly summarizes current guidelines for developmentally appropriate assessment practices from national organizations such as the NAEYC, which leads to a discussion of observational methods available to educators. Next, the review presents a summary of alternative assessment instruments and includes research on the evidence regarding the efficacy of these instruments. Finally, this chapter discusses what has been published regarding assessment in Montessori classrooms.

Theoretical Framework

This study linked child development theory with classroom assessment using a theoretical framework based on the work of Lev Vygotsky (1896-1934) and Maria Montessori (1870-1952). Contemporaries, they approached learning and development from complimentary perspectives, the former from a theoretical perspective and the latter from an applied perspective.

The key concepts linking child development theory with classroom assessment are Vygotsky's notions of the zone of proximal development (ZPD) and scaffolding, respectively. Berk and Winsler (1995) defined the ZPD as:

> the distance between what an individual can accomplish during independent problem solving and what he or she can accomplish with the help of an adult or more competent member of the culture. The hypothetical, dynamic region where learning and development take place. (p. 171)

In other words, Vygotsky viewed the ZPD as the narrow and yet dynamic range in which cognitive development and learning occur. On one end of the range are tasks that the child can perform independently: his or her actual level of development. On the other end of the range are tasks that he or she can perform only with the help of a more capable adult or peer.

The ZPD, a developmental concept, implies Vygotsky's corollary notion of scaffolding, a practical concept. Scaffolding is defined here as a collaboration in which "the adult supports the child's autonomy by providing sensitive and contingent assistance, facilitating children's representational and strategic thinking, and prompting children to take over more responsibility for the task as their skill increases" (Berk and Winsler, 1995, p. 32). In other words, the adult supports the child in moving from

dependent task completion (on one end of the ZPD) to independent task completion (on the other end of the ZPD). As this process is repeated, it facilitates the forward movement of the ZPD along the developmental continuum.

While Vygotsky's constructs of the ZPD and scaffolding are essentially theoretical, Montessori's notions of scientific pedagogy and guided teaching are essentially practical. Scientific pedagogy is the idea of the teacher as a scientist, someone who is continually observing, hypothesizing and experimenting (Montessori, 1964). This is the teacher who constantly is watching the children and tinkering with the curriculum and instruction based on what he or she sees. Scientific pedagogy is the practical manifestation of the ZPD because in order to determine where a child's ZPD is located on the developmental continuum, the teacher must actively observe, acquiring evidence of the child's developmental level.

Once the teacher has determined the child's developmental level, the teacher can effectively scaffold. In the classroom, this is the teacher who acts as a guide to the children. "The teacher has thus become a *director* of the spontaneous work of the children" (Montessori, 1964, p. 370). Rather than pouring knowledge into his or her students, this teacher notices where a child is developmentally and helps

connect him or her with the experiences that will most benefit construction of the self.

    To put it another way, this view of child development suggests that the teacher be an "assessor and supporter of learning" (Bredekamp & Rosegrant, 1995, p. 22). The teacher's role is thus one of scaffolding based on both an understanding of the developmental continuum in general as well as specific knowledge of individual children (i.e. the parameters of their ZPD). If the teacher lacks a clear understanding of early childhood development, he or she will have no context in which to place their understanding of individual children. Likewise, if the teacher does not have a clear picture of each child's current development, he or she will be unable to locate each child's position along the developmental continuum. In either case, instructional decisions made by the teacher may not accurately reflect the developmental needs of individual children.

    With both of these pieces in place, however, the teacher can accurately identify each child's location on the continuum and make the best decisions possible regarding what to do next with each. In other words, the teacher must assess each child in relation to the developmental continuum in order to scaffold effectively (Berk & Winsler, 1995; Bredekamp & Rosegrant, 1995).

This understanding of the role of both the teacher and assessment leads to a specific view on the purposes and methods of assessment. If, as above, assessment is seen primarily as a means to effective scaffolding and individualized education, it may be incompatible to use assessment information for other purposes, such as determining readiness to enter school or making high-stakes decisions about individual children. These issues are discussed more fully below.

Assessment Purposes and Methods

The literature broadly identifies four appropriate purposes for early childhood assessment: 1) improving learning and instruction, 2) communicating progress to parents and other stakeholders, 3) identifying children who may have special needs, and 4) evaluating programs and monitoring trends (Bredekamp & Copple, 1997; Bredekamp & Rosegrant, 1995; Chittenden & Jones, 1998; Gullo, 1997; Katz & Chard, 1996; NAEYC & NAECS/SDE, 2003; Shepard et al., 1998). While all of these purposes should be considered when developing an assessment system, this study was concerned primarily with the first purpose: improving learning and instruction.

It is worth noting briefly the purposes of assessment that were not mentioned above, those that the literature identifies as inappropriate in an early childhood setting.

Assessment information is used inappropriately when it is used to determine readiness to enter school, to determine placement in education programs, or to make high-stakes decisions about individuals or programs (Shepard et al., 1998). The developmental characteristics of young children (discussed below) invalidate these uses of assessment information. Fortunately, there is evidence that many of these inappropriate uses are less widespread than in the 1980's (Shepard et al., 1996).

Developmentally Appropriate Early Childhood Assessment

The literature indicated a broad consensus regarding what constitutes developmentally appropriate early childhood assessment (Grisham-Brown et al., 2006). To begin with, assessment practices must be based on knowledge of the characteristics of early childhood development. Assessment practices must recognize that young children's development is both rapid and episodic and that the different areas of development are interrelated (Bredekamp & Copple, 1997; Bredekamp & Rosegrant, 1995; Chittenden & Jones, 1998; Hills, 1993). In addition, any assessment must account for children's developmental limitations, such as the tendency toward impulsivity and the frequent inability to generalize knowledge (Gullo, 1997).

Based on these known characteristics, early childhood assessment is appropriate when it is: 1) authentic, 2) longitudinal, 3) comprehensive, and 4) gathered from multiple sources. Each of these is discussed in detail below.

When discussing issues of educational reform it is important to note that "the rhetoric of reform is constantly expanding and adopting new terms" (Niyogi, 1995, p. 5). Perhaps as a symptom of this continuous flux in the language, there was a consistent lack in the literature of standard definitions for the vocabulary of alternative assessment. For example, the literature contained multiple, closely aligned definitions of "authentic assessment" (Coutinho & Malouf, 1992). In addition, while various terms seemed to indicate more or less the same notion, the relationship between them was not always clear. Terms such as "naturalistic" (Grisham-Brown et al., 2006, p. 46), "curriculum embedded" (Shepard et al., 1996, p. 9), "play-based assessments" (Grisham-Brown et al., 2006, p. 48), and "performance assessment" (Niyogi, 1995, p. 6) often had overlapping explanations. For definitions of key terms used in this study see the section in Chapter I called "Definitions".

The first aspect of developmentally appropriate early childhood assessment is that it must be authentic (Bredekamp & Copple, 1997; Grisham-Brown et al., 2006; Gullo, 1997;

Schweinhart, 1993), defined for the purposes of this study as

an assessment that "takes place in the context of children's

lived experience" (Meisels, 1993, p. 39). As stated above,

young children display developmental limitations such as

impulsivity and the inability to generalize knowledge.

Consequently, any assessment technique that requires a child

to perform outside of his familiar context (e.g. unfamiliar

environments, people, or tasks) will not reflect the true

level of that child's development. Standardized and norm-

referenced tests, being unfamiliar to young children in both

format and content, therefore, cannot accurately depict a

child's developmental status. What is required instead are

techniques such as observation, conversation or work sampling

that leave the child in his or her usual environment and draw

information from the everyday tasks and products the child is

involved in (Bredekamp & Rosegrant, 1992; NAEYC & NAECS/SDE,

2003).

Second, appropriate early childhood assessment must be

longitudinal and continuous (Bredekamp & Copple, 1997; Gullo,

1997; Hills, 1993; NAEYC & NAECS/SDE, 2003; Shepard et al.,

1998). In other words, assessments should be made frequently,

at varying times of the day, week, and year, and over long

time periods. As noted earlier, children's development is

rapid and episodic. A single assessment at any given time

cannot adequately reflect the full and dynamic range of
abilities and knowledge that a child has and develops over the
course of a year. According to Niyogi (1995), American
students take an average of three standardized tests per year.
Even with more frequent test-taking, the "snapshot" approach
of standardized testing falls short of the recommendation for
longitudinal and continuous assessment. Instead, data should
be gathered continuously throughout the course of a year in
order to provide accurate, up-to-date and complete information
on which the teacher can make instructional decisions.

    Third, assessments of young children should be
comprehensive. That is, assessments should be inclusive of all
areas of development and account for the multidimensional
nature of development and learning (Gullo, 1997). Research
evinces the complexity of child development (Schappe, 2005),
and as a result, any assessment that does not address all
aspects of learning and development may not reflect a child's
true knowledge or ability. Standardized and norm-referenced
tests disconnect the various aspects of development by relying
on discrete, narrowly focused questions. This ignores the
essential complexity of early childhood development and may
result in an unrepresentative depiction of a child's current
level of development. On the other hand, assessments that
address the interconnectedness of different aspects of

development will be much more effective in determining a
child's knowledge on a given topic (Meisels, 1993).

Fourth, assessments of young children should be based on
evidence gathered from multiple sources, such as classroom
observations, conferences with parents, and work samples
(Bredekamp & Copple, 1997; Grisham-Brown et al., 2006). As
mentioned before, children's development is unsteady and they
often are unable to generalize a given piece of information or
ability. Without consulting parents about what a child is
capable of at home, for example, a teacher may erroneously
conclude based on classroom observations that the child has
not yet learned a given skill. Assessments should, therefore,
include information from many sources in order to ensure that
a teacher's understanding of a child is complete and accurate.

To summarize, assessment of young children is
developmentally appropriate when it is authentic,
longitudinal, comprehensive, and gathered from multiple
sources. Furthermore, while the value of standardized testing
can be reasonably espoused for children grade 3 and up, the
"justification for using standardized, group-administered
achievement tests for children below grade 3 is highly dubious
and questionable" (Meisels, 1993, p. 35).

Guidelines for Developmentally Appropriate Assessment

Concurrent with the above understanding of appropriate early childhood assessment, in 2003 the NAEYC published a joint position statement with the National Association of Early Childhood Specialists in State Departments of Education (NAECS/SDE) indicating the characteristics of assessments that are effective at supporting curriculum. Following is a summary of the most salient guidelines (for a complete list of guidelines, see Appendix A).

a. Assessment evidence is used to understand and improve learning.

b. Assessment evidence is gathered from realistic settings and situations that reflect children's actual performance.

c. Assessments use multiple sources of evidence gathered over time.

In other words, assessment should benefit children's development, occur naturalistically, utilize multiple sources of information, and be conducted longitudinally.

It should be noted that this position of the NAEYC is clearly aligned with the literature on early childhood assessment described in the section above. In addition, these guidelines reflect an earlier set of standards developed by the National Education Goals Panel (Shepard et al., 1998). The

overall result is a well-defined and nationally prominent set of guidelines for early childhood assessment.

<div align="center">Alternative Assessment Methods</div>

Within this framework of appropriate assessment, the literature consistently identified observation as the primary vehicle for gathering data about young children. For the purposes of this study, observation is defined broadly as "a systematic way to collect data by watching or listening to students during an activity" (Shepard et al., 1998, p. 38). Interestingly, however, while Smith, Kuhs, and Ryan (1993) noted observation-based assessment as being an effective technique for discovering the processes and content of young children's learning, the extent to which observation is used was not clear. On one hand, researchers such as Katz and Chard (1996) argued that there is a history within many early childhood programs of documenting observations and maintaining extensive records on individual children. On the other hand, Bredekamp and Rosegrant (1992) argued that assessment in general "has been underemphasized in early childhood education, not integrated in most teacher preparation programs, and relatively neglected in many curricula" (p. 43).

In addition to uncertainty about the extent to which young children are assessed, Bagnato, Neisworth, and Munson (1997, as cited in Gettinger, 2001) questioned the legitimacy

of assessments that do occur. They stated that standardized developmental tasks and norm-referenced testing procedures—as opposed to alternative assessments—continue to be the predominant techniques for assessing young children. While questions remain about which and to what extent observation-based assessment techniques are being used with young children, many researchers agree that observation, broadly construed, is the preferred approach to early childhood assessment (Bergan & Feld, 1993; Shepard et al., 1996, 1998).

Observation Documentation Tools

Under the umbrella of observation, the literature suggests a number of documentation tools available to early childhood educators, the most prominent of which were:

1. Anecdotal Records: "Brief nonjudgmental descriptions of an observed activity" (Smith et al., 1993, p. 6).

2. Checklists and Inventories: These list "classroom activities and expectations that are developmentally appropriate and learner centered" (Meisels, 1997, p. 62).

3. Rating Scales: Used for "recording behaviors that have various aspects or components" (Smith et al., 1993, p. 6).

4. Photographs and Audi/Video Recordings: Provides visual/auditory evidence of a child's performance (Smith et al., 1993).

These documentation techniques are noteworthy because they

allow educators to track many students across a large number

of elements. For example, an anecdotal record of a child's

pencil grip could be combined with checklists of curricular

activities to provide insight on a child's performance in

writing, math, art, or any other subject that requires fine

motor skills. Some researchers argued, however, that these

techniques by themselves provide too superficial a description

of a given child. What is needed to complement the breadth of

documented observation, they argue, is the depth provided by

portfolios.

<center>*Portfolios*</center>

While observation-based assessment was identified as

essential to early childhood assessment, some researchers

argued that individual assessment could provide a much deeper

picture of each child if observation was complimented by

portfolio-based assessment. While portfolios were variously

defined in the literature, this study reflects Meisels' (1993)

definition of a portfolio as a "purposeful collection of

children's work that illustrates their efforts, progress, and

achievement and potentially provides a rich documentation of

each child's experience throughout a year" (p. 37). Portfolios

were cited as powerful tools because they address the

comprehensive nature of child development, represent an array

of work, and integrate assessment with instruction (Martin, 1996; Meisels, 1993). In addition, "over time the portfolio provides an overview of the individual's pattern of development and the significant life experiences of the person profiled" (Martin, 1996, p. 2). At least some of the value in portfolio-based assessment is in its ability to provide rich, longitudinal information about an individual.

       Clearly, the depth provided by portfolio-based assessment and the breadth provided by observation-based assessment are highly complimentary. Furthermore, there is limited evidence that these approaches used in combination have a positive, measurable effect on child outcomes.

                    Alternative Assessment Instruments

       The literature contained references to a number of available alternative assessment instruments. While it is beyond the scope of this literature review to address them all, the four most prominent instruments are described briefly below. Note that these four systems purport to meet the criteria discussed earlier for developmentally appropriate assessment; they are authentic, longitudinal, holistic, and gather data from multiple sources.

       The efficacy of the first two instruments discussed below (the Preschool Child Observation Record and the Assessment, Evaluation, and Programming System) has not been studied, and

therefore the impact of their use on child outcomes is
unknown. The efficacy of the other two instruments (the Work
Sampling System® and the Measurement and Planning System),
however, has been studied. After describing the Work Sampling
System® below, a study regarding its effects on child outcomes
is discussed. This is followed by a description of the
Measurement and Planning System as well as a discussion of the
evidence regarding its effects on child outcomes.

Preschool Child Observation Record (Preschool COR)

According to the High/Scope Educational Research
Foundation (n.d.), which developed and sells the instrument,
Preschool COR includes 32 dimensions of learning in the
categories of initiative, social relations, creative
representation, movement and music, language and literacy, and
mathematics and science. Preschool COR systematizes
naturalistic observations of individual children in order to
improve instruction and learning and to communicate
development to parents. As mentioned above, the literature
contained no studies addressing the efficacy of Preschool COR
in improving educational outcomes.

The Assessment, Evaluation, and Programming System (AEPS) for
Infants, Toddlers, and Preschool Children

AEPS is a curriculum-based assessment system intended to
align assessment and curriculum planning (Grisham-Brown et

al., 2006). It was designed for use with children

developmentally functioning between birth and six years of

age. The system addresses a range of developmental domains

including language development, literacy, mathematics,

science, creative arts, social and emotional development,

approaches to learning, and physical health and development.

As with other developmentally appropriate assessments, the

goal of AEPS is to guide and improve teachers' instruction. As

mentioned above, the literature contained no studies

addressing the question of efficacy of AEPS in improving

educational outcomes.

Work Sampling System® (WSS)

WSS, designed for students in preschool through fifth

grade, is a continuous process of documentation and evaluation

intended to link assessment and instruction, thereby improving

both teaching and student learning (Meisels, 1997). Its key

components are checklists (using a modified mastery scale

rather than dichotomous items), portfolios, and summary

reports. In addition, Meisels, Bickel, Nicholson, Xue, and

Atkins-Burnett (2001) stated that it measures seven

developmental domains: personal and social, language and

literacy, mathematical thinking, scientific thinking, social

studies, the arts, and physical development. According to

Meisels et al. (2001), the true value of the system is its

impact on instruction. "Teachers using Work Sampling learn to translate their students' work into the data of assessment by systematically documenting and evaluating it, using specific criteria and well-defined procedures" (Meisels, 1997, pp. 61-62).

Though no studies addressed the effects of using WSS with children at the ECE level, there is evidence that proper implementation of WSS can improve student outcomes in both reading and math for elementary children. A study by Meisels, Atkins-Burnett, Xue, Bickel, and Son (2003) measured the impact of WSS on the change (between grade 3 and grade 4) in children's test scores on the Iowa Tests of Basic Skills. The sample for this study consisted of 96 third grade students who were exposed to WSS for three years prior to taking the ITBS, 116 students in non-WSS comparison schools, and 2922 students enrolled in all other Pittsburgh Public Schools. Students from the WSS group showed gains over both the comparison group (who had no exposure to WSS) and the average change of all other students in the district in reading and math. In addition, the positive effects were found in reading with both high and low performing students. Furthermore, an earlier study by Meisels et al. (2001) found teacher judgments of student performance based on WSS to be accurate when compared to a standardized individually administered psychoeducational battery.

These findings can be reliably applied only to the elementary age groups actually studied. However, it suggests that WSS is an effective alternative assessment tool. WSS was designed for children as young as pre-kindergarten. It seems likely, therefore, that positive results would be found at the ECE level as well.

Measurement and Planning System (MAPS)

Bergan and Feld (1993) described the process of developing MAPS, an alternative assessment system designed specifically for Head Start. The goal of this system is to link assessment, curriculum, and instruction using path-referenced instruments. Path-referenced assessments, as opposed to criterion-referenced or norm-referenced tools, focus on what a child has learned and what they are likely to develop next. In short, they describe a child's position on the path of development. The system relies on direct, naturalistic observation of children and covers a broad range of content areas including cognitive, physical, and socio-emotional development. MAPS includes both observation guides and tools for recording observations and encourages the use of portfolios.

A study by Bergan, Sladeczek, Schwarz, and Smith (1991), examined the effects of using MAPS by collecting data for 838 public school kindergarten students from 21 schools in 7

school districts across 6 states. They found evidence that using MAPS resulted in significantly positive gains for kindergartners' cognitive functioning and had a large effect on special education placement. The authors argued that the cognitive gains in the experimental group (n = 428) resulted because teachers using MAPS created richer learning environments that more closely matched each child's developmental level.

The difference in special education placement between the experimental and control groups was particularly striking. In the classrooms using MAPS, 1 in 71 children were placed in special education compared to 1 in 5 in the control classrooms. This vast difference in special education placement, the authors concluded, was a result of two combined factors. First, children whose teachers used MAPS were higher in basic cognitive skills and therefore less likely to be referred to special education. Second, teachers who used MAPS were less likely to perceive that a child needed special education services than teachers who did not use MAPS. These two factors, children's higher cognitive skills combined with teachers' changed perceptions of their students, acted together to greatly decrease the number of referrals to (and, therefore, placement in) special education programs.

In summary, a number of alternative assessment instruments have been developed for non-Montessori classrooms. Though research on the effects of these instruments is limited, two of these, WSS and MAPS, have been studied to determine if they are effective at improving educational outcomes for students. The efficacy of WSS at the ECE level can only be inferred because the relevant study looked at children in grades 3 and 4. The evidence that MAPS is effective at improving educational outcomes at the ECE level, however, is direct and therefore much stronger. Taken together, these studies provide evidence that the systematic use of alternative assessment instruments can improve educational outcomes for ECE students.

Assessment in Montessori Classrooms

As discussed earlier, the Montessori Method of education has emphasized the importance of what is now termed alternative assessment since the inception of the approach over 100 years ago. Dr. Montessori frequently used the term "scientific pedagogy" (Montessori, 1964) to communicate the importance of observation and experimentation in education. She argued that the teacher's role was one of scientist and facilitator of learning.

Contemporary Montessori literature, while using a somewhat updated vernacular, continues to emphasize the

importance of alternative assessment as a means for improving

classroom instruction and learning. The American Montessori

Society (n.d.a.) stated that:

> assessment procedures used in American schools [should]
>
> move away from reliance on written tests as the only
>
> format for indicating educational achievement, and toward
>
> formats (portfolios, presentations, and multi-media
>
> projects) that more authentically gauge the ability to
>
> interrelate ideas, think critically, and use information
>
> meaningfully (p. 2).

A number of authors in Montessori professional publications

have commented on the primary importance of observation and

other alternative assessment techniques in Montessori

classrooms (Barron, 1998; Bronsil, 2003; Kripilani, 2006;

Loeffler, 1998). In addition, according to Roemer (1999)

Montessori teacher training programs include instruction on

observation, stressing observation as "one of the most

beneficial types of assessment practices" (p. 22).

Yet despite the historical and contemporary emphasis on

alternative assessment in the Montessori approach to

education, no research was found on assessment in Montessori

early childhood classrooms. However, two studies on the topic

of assessment in Montessori elementary classrooms were

identified. Though they do not directly address Montessori

assessment practices at the ECE level, the Roemer (1999) and Stern (2007) studies are discussed briefly because they were the only sources of data on Montessori assessment.

Roemer (1999) found that although assessment was occurring regularly in Montessori elementary classrooms, practices were not uniform. That study concluded that of 108 respondents from 74 American Montessori Society member elementary schools (kindergarten through grade six):

- More than 50% of teachers reported using the following "all of the time" or "a lot": anecdotal records, informal conferences with students, observation, one-to-one interviews with students, checklists of lessons, demonstration of skill mastery, and standardized achievement tests

- Assessment practices that teachers considered important, from most important to less important were: observation, demonstration of skill mastery, informal conferences with students, checklists of lessons, anecdotal records, and one-to-one interviews with students

- 44.5% of teachers reported using portfolios "all of the time" or "a lot"

- 48.2% of teachers reported using student journals "all of the time" or "a lot"

As can be seen above, teachers used both alternative and traditional methods of assessment. However, Roemer (1999) found that of the assessment methods reported as most successful (observation, discussions, checklists, anecdotal records, and student portfolios) observation was by far the most frequently commented on. Furthermore, while standardized achievement tests were used, there was a perceived mismatch between this assessment approach and the Montessori Method. Indeed, student characteristics and the Montessori Method itself most influenced assessment practices used by teachers in the classroom.

A second study by Stern (2007) focused on the use of running records to assess the development of literacy skills in five, six and seven year-old children from a Montessori elementary classroom. It involved five children over one school year. A running record is a specific type of alternative assessment, what Stern (2007) defined as "an observational based literacy assessment protocol" (p. 2). Running records utilize a formalized method of observing and noting a student's literacy skills in a cycle of action, analysis and reflection.

Stern (2007) identified two positive outcomes from the use of running records. First, assessments of students' literacy skills became more comprehensive, accurate and

detailed. This in turn resulted in both more effective
scaffolding of reading skills and more success matching
students with books that were appropriately challenging.
Second, the teacher's knowledge of the literacy curriculum
deepened, resulting in positive changes in instructional
practices and infrastructure.

The process of running records requires a large
investment in teachers' time because it involves focused
attention on one child for the duration of a reading activity,
so it is questionable whether or not such an approach would be
feasible with the full Montessori curriculum and a full class
of twenty-four or more children. However, the basic elements
of formal observation nested in a cycle of action, analysis
and reflection define the ideal picture of assessment in
Montessori classrooms.

Though Roemer (1999) and Stern (2007) both examined
assessment in Montessori elementary classrooms, the Montessori
tradition of observation makes it reasonable to suppose that a
study of assessment practices in Montessori ECE classrooms
might result in similar findings, namely an emphasis on
alternative assessment methods such as observation and
anecdotal records. However, there may be unknown factors that
make such conjecture unfounded. The only way to gain a true
understanding of assessment practices in Montessori ECE

classrooms is to conduct a study that directly addresses this issue.

<center>Summary and Conclusion</center>

A review of the literature uncovered no research describing assessment practices in Montessori early childhood classrooms. This is a significant gap in the literature. According to some estimates, there are more than 5,000 private Montessori schools and between 250 and 300 public Montessori schools in the United States alone (Lillard, 2006; Matthews, 2007). The American Montessori Society estimates the number of U.S. Montessori schools to be even higher, between 6000 and 8000 (American Montessori Society, n.d.b.). While it is difficult to estimate how many of these schools have ECE programs, it is generally believed that ECE programs make up the largest segment of Montessori programs.

The significant presence of Montessori education in the United States, the historical and contemporary emphasis on alternative assessment in the Montessori methodology, the national focus on developmentally appropriate assessment of young children, and the apparent cognitive benefits of alternative assessments techniques like those defined by the Montessori Method warrant this study's aim of describing assessment and instructional decision-making practices in Montessori early childhood classrooms.

CHAPTER III

METHODOLOGY

The purpose of this study was to examine the assessment and decision-making practices of Montessori early childhood teachers. More specifically, it attempted to describe what methods Montessori early childhood teachers use to collect information about their students, what processes they engage in when making decisions, and what their perceptions are regarding the level of support they receive for their assessment practices. The study followed a quantitative research design.

This chapter describes: 1) the demographics of the sample population, 2) how data was collected, 3) the development and implementation of the instrument, and 4) the process of data analysis.

Population and Demographics

The population for this study consisted of educators teaching in Montessori early childhood classrooms in five counties of the San Francisco Bay Area. An early childhood classroom was defined as one serving children ages 2.5 to 6.5 years. Teachers were included in the sample only if their classroom contained a minimum of 12 children and the respondent was actively teaching.

Of the 44 total participants, 100% were female (n = 43, one respondent did not answer this item), with an average age of 44.5 years. The ethnic composition of the sample (N = 44) was Caucasian (48%), Asian (16%), Other (16%), Latino (11%), and African American (2%). In addition, 7% of respondents declined to state their ethnicity. The highest level of education reached by respondents was High School (5%), Associate Degree (18%), Bachelors Degree (45%), and Masters Degree (32%). Participants had an average of 16.9 years of experience teaching early childhood education. Ninety-three percent (N = 44) of participants reported that they were certified as Montessori teachers. Of those certified, 17% (n = 41) were certified by the Association Montessori Internationale (AMI), 78% by the American Montessori Society (AMS), and 5% by other organizations.

Data Collection

Participants were solicited by mail (via the director of each program) from a list of 160 Montessori schools in the five counties. This list was created by combining mailing lists developed by a number of Montessori organizations in addition to listings found in the yellow pages corresponding to each region. It is currently maintained by the St. Mary's College of California Kalmanovitz School of Education. The information in this list—particularly mailing addresses, email

addresses and phone numbers—was augmented by information
obtained through searches of public information on the
internet.

In January of 2008, the researcher contacted by email the
directors of 96 (of 160 total) Montessori schools. Each
director was asked to verify the name of the school, mailing
address and number of classrooms serving children between 2.5
and 6.5 years old. If they responded with the information
requested, they were given an approximate timeframe for
receipt of the questionnaire packages. If they did not respond
or if the email delivery failed, the school was called and the
same information as above was requested. An additional 64
schools—those for which no email address could be found—were
called on the phone requesting the same information as the
email.

In the subsequent two weeks, 106 questionnaire packets
containing a total of 256 questionnaires were mailed to the
directors of schools for which the mailing address and number
of classrooms serving children between 2.5 and 6.5 years old
were known. Each questionnaire packet consisted of:

- Letter to the Director (see Appendix B): The letter
  contained a brief explanation and overview of the study
  and one teacher questionnaire packet for each classroom
  serving children between 2.5 and 6.5 years old.

- Teacher Questionnaire Packet: Each packet included a
  letter to the teacher (see Appendix C), a consent form
  (see Appendix D), a questionnaire (see Appendix E), and
  an addressed and stamped envelope.

One week after the initial deadline, follow-up activities were
begun. A follow-up email was sent to all of the directors who
had been sent questionnaire packets informing them of an
extended deadline and encouraging them to remind their early
childhood head teachers to complete and return the
questionnaire. This email was followed-up by phone calls, a
postcard and an additional email.

<div align="center">Instrument</div>

The questionnaire utilized in this study consisted of a
combination of structured question types (demographic, yes/no,
checklist, and numeric response items) and two unstructured,
or free response, questions. It was developed by the
researcher based in part on the questionnaire from the Roemer
(1999) study as well as the interview protocol from the Daoust
(2004) study.

The questionnaire was piloted with a group of four
educators who matched the requirements for the target
population (see the section Population and Sample, above).
Based on the results and feedback of the pilot participants,
the questionnaire was revised and submitted to an expert

reviewer. Final revisions were made based on the comments provided by the expert reviewer.

Data Analysis

The data were analyzed using descriptive statistical techniques. For closed-ended items, totals for each response category were summed and, where appropriate, percentages determined. Items eliciting a numeric response were analyzed to determine range, mode, median, and standard deviations.

The responses to the two open-ended items were coded according to themes identified. Once coded, totals for the number of times each theme was mentioned were summed and percentages determined. Though there were two open-ended items on the teacher questionnaire, respondents' comments overlapped, expressing a similar set of themes. In order to simplify the presentation of the data, the responses for these two items were combined during analysis. Item 24 received 37 responses and Item 25 received 36. Analysis of open-ended responses, therefore, was based on the combined sample size: n = 73. Comment types that were mentioned by only one teacher were not included as themes.

Though the prompt for Items 17-20 from the teacher questionnaire (which addressed frequency with which teachers use certain assessment methods) indicated that answers should be numeric, responses were a mixture of numbers, words (e.g.

"daily"), and checkmarks. In addition, many participants did

not respond to some items. This complicated the analysis.

Clearly, neither words nor checkmarks could be reliably

interpreted to refer to a specific number (that is, "daily"

could not be assumed to mean "once every day" and therefore 20

times in 4 week period). These responses, therefore, were not

included in analyses of frequency. As a result, the sample

size for frequency calculations is somewhat smaller than the

overall sample size. However, because word and checkmark

responses unambiguously indicate a positive response, they

were included in an analysis of how many teachers use each

assessment method *to some extent*. The presentation of these

data in Chapter IV, therefore, includes two analyses: 1) how

many teachers use each assessment method to some extent (i.e.

indicated a positive response of any form-number, word, or

checkmark) and 2) the frequency with which teachers reported

using each assessment method (looking at numeric responses

only). In both cases, sample sizes are smaller than the total

sample size for the study. Percentages and frequency

calculations for these data (presented in Tables 1 and 2)

reflect the smaller sample size rather than the total sample.

This chapter has described the demographics of the sample

population, the data collection process, the development and

implementation of the instrument, and the process of data

analysis. Chapter IV will present and describe the

quantitative data gathered.

CHAPTER IV

RESULTS

This chapter presents and describes the quantitative data
gathered during a study of the assessment and decision-making
practices of Montessori early childhood teachers.
Participants' responses to a questionnaire were tabulated and
the data were analyzed using descriptive statistics. The
presentation of the data that follows is organized according
to the six research questions described in Chapter I. In each
section, the research question is indicated in italics
followed by the data that addresses that question.

Research Questions

*Research Question 1: With what frequency are teachers using
the methods available to collect information about the
children in their classrooms?*

Interestingly, every method listed on the questionnaire
for collecting student information was used to some extent by
the teachers surveyed. Most notably, anecdotal records,
observations, checklists and informal conversations were used
by more than 90% of those that responded to each item. Table
1, on the next page, shows the percentage of teachers who
reported using each method to some extent. Note that the
sample size for each item is smaller than the total sample (N
= 44). Percentages listed in Table 1 reflect only the sub-

sample (those who answered each item) and do not reflect the

entire sample (i.e. non-responses are not included in

calculation of percentages).

Table 1
Assessment Methods: Extent of Use

Assessment Method	% Who Reported Using the Method to Some Extent
anecdotal records written by teachers	100% (*n* = 30)
audio/visual recordings	56% (*n* = 18)
checklists of lessons received	89% (*n* = 28)
checklists of skills mastered	94% (*n* = 32)
checklists of materials mastered	94% (*n* = 33)
informal conversations with students	97% (*n* = 30)
observation of students written by teachers	100% (*n* = 35)
formal interviews with students	56% (*n* = 18)
standardized tests	7% (*n* = 14)
student portfolios	64% (*n* = 14)
teacher-made tests	20% (*n* = 15)
texts and workbooks	55% (*n* = 20)

While there is a clear preference for use of naturalistic

methods such as anecdotal records, observation, checklists and

informal conversations, more traditional forms of assessment

such as texts and workbooks, teacher-made tests, and

standardized tests are being used on at least a limited basis.

When asked how frequently they used various methods for

collecting information, teachers who gave a numerical response

indicated that the most frequently used methods over a typical

4 week period were informal conversations with students (*M* =

28.9, *n* = 15), observation of students written by teachers (*M*

= 23.1, *n* = 22), and anecdotal records written by teachers (*M*

= 19.7, *n* = 21). These results should be viewed with caution because the sample sizes for these questionnaire items were less than half of the total number of respondents (*N* = 44) for the study (see Chapter III for a discussion of why). Nonetheless, these 4 week averages suggest that many teachers are using informal conversations, observations and anecdotal records to collect information about their students on a daily basis.

A second group of methods used less frequently (between 5.7 and 11.5 times in a 4 week period), were checklists of lessons received, checklists of materials mastered, checklists of skills mastered, and student portfolios (see Table 2).

Other methods of collecting information—audio/visual recordings, formal interviews with students, teacher-made tests, and texts and workbooks—were reported to be used less than 5.1 times in a 4 week period, on average.

Finally, only one teacher reported using a standardized test. They stated that the test was administered "yearly" to kindergarten-age students and was motivated by a desire to prepare them for the tests that they would face in grade school.

Table 2
Assessment Methods: Frequency of Use

Assessment Method	Frequency of Use (per 4 week period)				
	n	*M*	*SD*	median	range
anecdotal records written by teachers	21	19.7	31.7	8	1-120
audio/visual recordings	15	3.7	5.8	0	0-15
checklists of lessons received	21	11.5	20.9	4	0-96
checklists of skills mastered	21	6.4	7.9	4	0-25
checklists of materials mastered	22	7.1	8.5	4	0-32
informal conversations with students	15	28.9	75.6	4	0-300
observation of students written by teachers	22	23.1	62.9	6	1-300
formal interviews with students	16	3.4	6.8	.5	0-24
standardized tests	13	0	0	0	0
student portfolios	10	5.7	8.8	.5	0-20
teacher-made tests	15	2.1	5.4	0	0-20
texts and workbooks	18	5.1	6.1	2	0-20

As indicated by the large standard deviations for some of the items in the above table, there was a high degree of variability between teachers' responses. This is also reflected in the large range in numerical responses (as high as 300 for one item). The variability could be due partly to the small sample size for each item (less than half of the total sample size) and also could indicate that this section of the teacher questionnaire was poorly formed. It is also possible that the data reflect reality—that the frequency with which teachers use specific methods varies widely.

In summary, though both traditional and alternative methods for collecting information about students were reported to be used to some extent, there was a higher frequency of use of alternative methods such as informal conversations, observation of students, and anecdotal records. On average, teachers reported using informal conversations and observations on at least a daily basis. This suggests that in general teachers are using certain naturalistic tools consistently and continuously.

Though less frequent, the data suggest that teachers also use both dichotomous checklists (to track what lessons have been given, what materials children have been using, and what skills have been mastered) as well as student portfolios. Finally, use of traditional methods that remove children from their lived experiences (such as standardized tests or workbooks) was reported to be relatively infrequent.

Research Question 2: What information do teachers focus on if and when they make recorded observations?

The following table (Table 3) indicates what kinds of information teachers reported focusing on when making observations of their students. While there was some variation in their focus, it is clear that most teachers look at a range of characteristics during observations. In fact, 57% of

respondents indicated that they look at all of the

characteristics listed on the questionnaire.

Table 3
Focus of Observations

Type of Information	% of teachers that focus on it $N = 44$
activity choices	100%
ability to follow classroom rules	93%
interactions with peers	93%
level of concentration	91%
level of independence	89%
motor skills	86%
attitudes	77%
instances of practice with/mastery of materials	77%
location in progression of materials	75%

As indicated in the above table, over 90% of respondents

reported focusing on their students' activity choices, ability

to follow classroom rules, interaction with peers, and level

of concentration. Though all other aspects of students'

behavior received a relatively moderate amount of focus during

teachers' observations of students, the item that received the

least focus (location in progression of materials) still was

focused on by 75% of respondents.

In summary, while there was some variation reported in

teachers' focus during observations (*SD* = 3.8), there is a

clear tendency to take a broad perspective, looking at a wide

range of characteristics. In addition, it is significant that

100% of teachers focus on activity choices. This finding will be discussed in more detail in Chapter V.

Research Question 3: What systems, if any, are currently in place in Montessori early childhood classrooms for recording and maintaining observations and other student data?

The data showed that the most common system for recording and maintaining student information was paper files (95%, *N* = 44, reported using some form of this system). Comments from respondents showed that paper files can take many forms, including notes organized in a binder, note cards, notebooks containing observations, and record-taking and reporting forms created in-house.

In addition to using paper files, 25% (*N* = 44) of teachers reported using computer files. Respondents did not indicate what form their computer files took (e.g. word files, checklists, spreadsheets, data bases, narrative reports, etc.).

Only one teacher (2%, *N* = 44) reported using a commercially available program. This respondent specified that they use Montessori Records Xpress, an online system referenced in Chapter I.

Research Question 4: How frequently are teachers using recorded observations and other student data to inform their instructional decisions regarding individual children?

The vast majority of respondents (95%, *n* = 41) indicated that they refer to student information to some extent. However, the frequency with which teachers do so varied widely (*SD* = 54.1, *n* = 30). While 1 teacher reported referring to student information as many as 300 times in a typical 4 week period, 2 reported not doing so at all. On average teachers refer to student information somewhat less than once per day (*M* = 18.7, *n* = 30).

When asked how often during a 4 week period they rely on their memory of a student when deciding what activity or lesson to introduce, 100% of respondents (*n* = 41) reported doing so to some extent. In fact, the data indicate that, on average, teachers rely on their memory more frequently (*M* = 27.2, *n* = 20) than they refer to student information (*M* = 18.7, *n* = 30).

When asked how often during a 4 week period they discuss student information with co-teachers, 100% of respondents (*n* = 43) indicated doing so to some extent, largely on an informal basis. However, formal meetings amongst co-teachers to specifically discuss student information occur relatively infrequently (*M* = 5.6, *n* = 22).

Research Question 5: What processes, if any, are teachers using to link recorded observations and other student data with assessment and instructional decision-making?

In the questionnaire, teachers were asked to describe the role that their assessment practices played in their overall approach to education. Their responses were coded and grouped according to themes identified by the researcher (see Chapter III for a full discussion). Below is a brief description of the themes that were identified in the teachers' responses as well as the percentage of teachers who expressed a comment congruent with that theme.

By far the most common theme (expressed in 55% of teachers' comments, *n* = 73) was that informal assessment is valuable in guiding decisions at every level. Teachers specifically mentioned that assessment helped in decision-making regarding lessons and activities for individuals and groups, planning and affecting change in the classroom environment, and scaffolding both academic and social activities.

The second most often mentioned theme (expressed in 25% of teachers' comments, *n* = 73) was that assessment information helps teachers maintain a clearer and more up-to-date mental picture of each child's level of development. However,

comments did not make explicit the relationship between a
teacher's mental picture of a child and its influence on
decision-making.

        The third most common theme (expressed in 19% of
teachers' comments, n = 73) was that assessment information
was beneficial in communicating with parents. Teachers
commented that it helps them prepare for parent/teacher
conferences, promotes closer collaboration with parents, and
informs ongoing communication with them as well.

        A fourth theme, expressed in 11% of teachers' comments (n
= 73), was that assessment occurs as a response to concerns
regarding individuals and that it helps identify children at
risk of learning disabilities.

        In addition, two themes, expressed in 5% or less of
teachers' comments, were that 1) assessment is very important
in daily classroom practices (5%, n = 73) and 2) assessment
facilitates communication with other staff (3%, n = 73).
Finally, 9 comment types were mentioned by only one teacher
and were not included as themes.

        In summary, teachers' comments made it clear that the
most important role of assessment information is that it
informs decision-making at every level of the classroom. Of
secondary importance is its role in clarifying and updating

teachers' mental picture of each child as well as the value that it adds to communication with parents.

Research Question 6: What do teachers perceive are their greatest obstacles in engaging the assessment process?

Teachers were asked to indicate if they agreed with a number of statements addressing how they feel supported and would like to be supported in their assessment practices. When asked if they felt they are currently being supported in their assessment practices, 76% (n = 38) said they do feel supported while 24% (n = 38) said they do not.

Table 4, below, lists five statements regarding how teachers feel they are currently being supported in their assessment practices and shows what percentage of respondents indicated agreement with each statement.

Table 4
Teachers' Perceived Support in Assessment Practices

Statement	% of Teachers that Agreed N = 44
My school leadership emphasizes the importance of student assessment.	39%
I have an effective record keeping system.	55%
I have time set aside specifically for assessment tasks.	39%
I had pre-service training on assessment practices.	25%
I have received in-service training on assessment practices.	32%

Table 5, on the next page, lists five statements
regarding how teachers *would like* to be supported in their
assessment practices and shows what percentage of respondents
indicated agreement with each statement.

Table 5
Teachers' Perceived Lack of Support in Assessment Practices

Statement	% of Teachers that Agreed $N = 44$
I would like my school's leadership to emphasize the importance of student assessment.	18%
I would like to have an effective record keeping system.	32%
I would like to have time set aside specifically for assessment tasks.	43%
I would like to have had pre-service training on assessment practices.	23%
I would like to receive in-service training on assessment practices.	23%

Though 76% ($n = 38$) of teachers agreed that they feel
supported in their assessment practices (while 24% [$n = 38$]
said they did not), their responses to more specific
statements regarding how they feel supported and how they
would like to be supported create a more detailed picture. In
general, more teachers reported being supported by school
leadership (39%, $N = 44$), effective record keeping systems
(55%), pre-service training (32%), and in-service training
(25%) than those who *would like* to be supported in these ways
(18%, 32%, 23% and 23%, respectively). On the other hand, more

teachers agreed that they wanted time set aside specifically for assessment tasks (43%, N = 44) than those that did not (39%). This suggests that, although many teachers feel supported in their assessment practices, a significant number of teachers face obstacles that may prevent them from making effective assessments.

Summary

This chapter used descriptive statistics to present the data gathered from respondents. The next chapter (Chapter V) reviews the study's purpose, discusses the main findings that emerged from the data, and presents recommendations both for practice and further research.

CHAPTER V

CONCLUSIONS AND DISCUSSION

This chapter discusses the main conclusions regarding assessment and decision-making practices in Montessori early childhood classrooms and considers the possible implications. It begins with a review of the purpose of the study and the research questions. This is followed by a discussion of the main conclusions that emerged from the data. After presenting some recommendations for practice, the chapter ends with suggestions for further research.

Review of Purpose

This study followed a quantitative design in order to examine assessment and instructional decision-making in Montessori early childhood classrooms. It attempted to describe what methods Montessori early childhood teachers are using to collect information about their students, what processes they engage in when making decisions, and what their perceptions are regarding the level of support they receive for their assessment practices. More specifically, this study attempted to answer the following six research questions:

1) With what frequency are teachers using the methods available to collect information about the children in their classrooms?

2) What information do teachers focus on if and when they
   make recorded observations?

3) What systems, if any, are currently in place in
   Montessori early childhood classrooms for recording and
   maintaining observations and other student data?

4) How frequently are teachers using recorded observations
   and other student data to inform their instructional
   decisions regarding individual children?

5) What processes, if any, are teachers using to link
   recorded observations and other student data with
   assessment and instructional decision-making?

6) What do teachers perceive are their greatest obstacles in
   engaging the assessment process?

The summary of conclusions that follows is organized to
reflect these research questions.

Conclusions

*Conclusion 1: Montessori teachers' main tools for collecting
student information are consistent both with Montessori
tradition and with the consensus in the literature.*

The data made it clear that the majority of Montessori
early childhood educators rely primarily on three methods for
collecting information about their students: observations,
anecdotal records and informal conversations. Importantly,
100% of respondents to the relevant questionnaire items

reported using anecdotal records and observations to some extent. On average, teachers reported using informal conversations and observations on at least a daily basis and anecdotal records only slightly less. This suggests that in general teachers are using these tools consistently and continuously.

As discussed in Chapter II, use of these methods is consistent both with the Montessori tradition of scientific pedagogy (Montessori, 1964) and with the prevailing view in the current literature that naturalistic observation is the preferred approach to early childhood assessment (Bergan & Feld, 1993; Shepard et al., 1996, 1998).

Interestingly, 64% of Montessori teachers reported using portfolios an average of 5.7 times in a 4 week period. These numbers must be viewed cautiously, however, because the sample size (n = 10) for this item was particularly low. This may indicate that many teachers were not familiar with the method. Clearly, not all Montessori teachers are using portfolios. While it is encouraging to know that some teachers are using this method of assessment, which the literature highlighted as a powerful tool for assessing young children (Martin, 1996; Meisels, 1993), many are missing the depth of assessment provided by this technique.

Finally, the low frequency with which Montessori teachers use tests, texts and workbooks, and standardized tests is also consistent with the recommendations that emerged from the literature review, which found that the "justification for using standardized, group-administered achievement tests for children below Grade 3 is highly dubious and questionable" (Meisels, 1993, p. 35).

Conclusion 2: Montessori teachers focus on a broad range of developmental indicators when observing their students.

Respondents reported focusing on a broad range of behavioral information when making observations of their students, including cognitive, socio-emotional, and physical development. The vast majority of teachers reported focusing, for example, on activity choices (cognitive development), interactions with peers (socio-emotional development) and motor skills (physical development). In fact, 100% (N = 44) of respondents reported focusing on activity choices. This is noteworthy because the Montessori curriculum is designed to follow children's natural path of development. Noticing what activities children choose, therefore, may be an efficient way for a teacher to determine a child's location on the developmental continuum as a basis for curricular decisions.

This broad focus of teachers' observations reflects the complexity of child development and is consistent with the consensus in the literature that assessments should be inclusive of all areas of development and account for the multidimensional nature of development and learning (Gullo, 1997).

Conclusion 3: Montessori teachers rely primarily on paper files to record and maintain student information.

Nearly all of the respondents (95%, *N* = 44) reported using paper files to record and maintain student information. However, within the category of paper files, there was little consistency in approaches. Teachers reported using a variety of types of paper filing systems, such as binders of hand-written notes, note cards, notebooks containing observations, and record-keeping and reporting forms created in-house.

Interestingly, there was a group of teachers 25% (*N* = 44) who reported using two systems: paper files and computer files. While the motivation for using dual systems was not made clear, it is likely that this approach is redundant. Perhaps data is recorded on paper files (checklists, anecdotal notes, etc.) then transferred to a computer for storage or report making.

Conclusion 4: Teachers' use of student information is limited and inconsistent.

While a majority of respondents (95%, *n* = 41) indicated that they refer to student information to some extent, the frequency (*M* = 18.7, *n* = 30) with which teachers do so varied widely (*SD* = 54.1, *n* = 30). Indeed, it seems that teachers rely on their memory more frequently (*M* = 27.2, *n* = 20) than they refer to student information (*M* = 18.7, *n* = 30). As a group, therefore, Montessori teachers may not consistently refer to the student information they collected, instead using observations informally as a means of supplementing their memory of their students.

Conclusion 5: It is unclear how Montessori teachers make decisions regarding instruction.

Respondents' comments regarding the role that assessment practices play in their overall approach to education failed to clarify how teachers are making decisions regarding instruction and guidance. While 55% of teachers' comments, (*n* = 73) expressed that informal assessment is valuable in guiding decisions at every level, little information was elicited describing the details of teachers' assessment processes. It remains an open question as to how the majority

of Montessori early childhood educators actually make

decisions regarding instruction of individuals and groups.

Conclusion 6: Montessori teachers' primary obstacles are lack

of an effective record keeping system, insufficient time for

assessment tasks, and the need for assessment training.

Though 76% (*n* = 38) of teachers said they feel supported

in their assessment practices, many indicated a need for more

support. First, an effective record keeping system was desired

by 32% of respondents (*N* = 44). This is not a majority, but it

is large enough to warrant notice. In addition, teachers'

comments suggested that many of their record keeping systems

were developed in-house, likely at the ongoing expense of

their time and energy. This suggests that for many Montessori

teachers the lack of an effective record keeping system (or

having to develop their own) is one obstacle to engaging in

assessment practices.

Second, many teachers (43%, *N* = 44) agreed that they

would like to have time set aside for assessment tasks. This

suggests that, for many Montessori teachers, insufficient time

is a second obstacle to engaging in assessment practices.

Third, there was clearly a lack of training regarding

early childhood assessment techniques. Only 25% (*N* = 44) of

respondents indicated receiving pre-service training and only

32% (*N* = 44) indicated receiving in-service training on

assessment. Not only is this surprising given the emphasis on

observation in the Montessori Method, it calls into question

Roemer's (1999) assertion that "Montessori teacher preparation

programs include many hours of instruction on observation of

students. Montessori teachers are taught that observation is

one of the most beneficial types of assessment practice" (p.

22). In addition, 70% (*N* = 44) of respondents indicated that

they would be interested in attending training and

professional development activities focused on assessment

practices. This suggests that, for many Montessori teachers,

insufficient training is a third obstacle to engaging in

assessment practices.

<div align="center">Summary</div>

    In summary, the conclusions discussed above support the

two hypotheses presented in Chapter I. The first hypothesis—

that many Montessori early childhood teachers do not engage in

an ongoing assessment cycle of collecting student data,

analyzing student data, and then making decisions about

instruction—is supported by Conclusion 4. Though many teachers

are observing their students and presumably are making

intentional decisions, it is clear that many do not engage in

the full cycle of observing, analyzing, and decision-making.

The actual processes by which decisions are made regarding

instruction, design of the environment, and so forth remain unclear.

The second hypothesis—that teachers who do engage in the assessment cycle rely primarily on an informal and unstructured approach—is also supported by Conclusion 4. The data suggest both that teachers do not often refer to the information they collect and that they communicate infrequently with other teachers regarding this information. In the absence of these uses of student information, it seems that the real use of student information is informal and unstructured. Rather than a systematic analysis of each student, student information likely serves to focus the attention of the teacher and update their mental pictures of students in order to inform decision-making.

<div align="center">Recommendations for Practice</div>

Three recommendations for practice emerged from the conclusions above. First, when one considers Conclusions 1 and 6 together, it becomes clear that although Montessori teachers are regularly making observations of and gathering information on their students, more training is needed. Emphasis should be placed on a systematic and cyclical approach to assessment. Particular focus should be given to the topic of portfolios, which have proven to be a powerful assessment tool but are still little used in Montessori classrooms. The first

recommendation, therefore, is for an increase in both pre-service and in-service teacher training on assessment techniques and tools.

A second recommendation is that effort be given to creating a basic system for recording, maintaining and accessing student information in a way that would be both basic and flexible enough to be applied in every Montessori classroom. Conclusion 3 suggests that teachers are often engaged in inventing and/or refining systems for maintaining student information in a usable format, while Conclusion 6 suggests that teachers face a shortage of time. The picture is of thousands of teachers who, all pressed for time, are engaged in isolation in the same task of developing their own student information system. This indicates the presence of a substantial obstacle to teachers' assessment activities that could be alleviated by a systematic effort to develop a basic system for recording, maintaining and accessing student information.

On the other hand, there may be benefits resulting from this constant reinvention of record keeping systems. For example, it is possible that because systems are created in the context of the classroom where they are to be used they become highly tailored to each classroom and possibly, therefore, more effective. However, this benefit will only be

realized if teachers are adequately trained in early childhood assessment and are provided adequate time for the task.

At the same time, it seems that the Montessori community is perhaps missing an opportunity to leverage the collective knowledge and experience of over a century of Montessori education. Certainly the combined resources of so many thousands of educators could be pooled to create a basic system for recording, maintaining and accessing student information in a way that would be both basic enough and flexible enough to be applied in every Montessori classroom. The second recommendation for practice, therefore, is that effort be given to creating just such a system.

A third recommendation is that administrators and teachers make ongoing assessment a priority by providing time explicitly for assessment tasks. Chapter II argued that developmentally appropriate assessment is a vital element in promoting the optimal development of young children. Conclusion 6 suggests that many teachers perceive insufficient time as an obstacle to their engaging in assessment practices. Taken together, these make a strong case for providing time explicitly for teachers to engage in the cycle of recording, maintaining and accessing student information and protecting this time from other demands on teachers' time.

Limitations

There were five factors that limit the generalizability of this study's findings. First, this study focused solely on primary classrooms in a Montessori setting. Any conclusions drawn from its findings, therefore, must be restricted to classrooms with children aged three to six years. Second, because Montessori environments are somewhat specialized, the study could only make assertions concerning this specific community of educators. That is, conclusions should not be generalized to non-Montessori settings. Third, only 44 teachers were included in the sample. As a result of the small sample size, findings could not be reliably generalized to all Montessori primary classrooms. Fourth, all classrooms in the sample were located in the San Francisco Bay Area of California. Consequently, the conclusions of the study should not be generalized beyond this geographic location. Fifth, this study utilized a convenience sample, restricting the generalizability still further.

In summary, the restricted nature of the sample, being gathered through convenience and limited to 44 members of a very specific population in terms of geography, school type, and age group, placed strict limitations on generalizing its findings. The conclusions enumerated above, therefore, should be understood as suggestive rather than definitive.

Recommendations for Further Research

In consideration of the limiting factors mentioned above, two recommendations for further research are as follows. First, future studies on the topic of assessment in Montessori classrooms should focus on improving the sample population. Ideally, the sample should be random and much larger in terms of both number of participants and geographic location. Second, efforts should be made to address more adequately how Montessori teachers actually make decisions regarding individuals and groups. This could perhaps be achieved through the addition of questions not asked by this study's questionnaire. However, given the complexity of classroom life, techniques such as interviews or case studies may be more effective at determining what observation, assessment, and decision-making actually look like in Montessori classrooms.

Synopsis

For over a century Montessori teachers have worked within the framework of the Montessori Method which espouses observing students and making decisions based on those observations. The literature clearly establishes observation and other techniques for collecting information from the lived experiences of children as the most appropriate means of early childhood assessment. The results of this study suggest that

Montessori ECE educators are in fact using observation and other alternative assessment techniques in the classroom. However, there are ways in which Montessori educators can improve their early childhood assessment techniques, and this study has suggested ways that this might be achieved. Finally, further study may suggest in greater detail how student information is used by teachers in Montessori classrooms to alter their instructional methodologies and may also provide additional ideas about how to improve the process.

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Appendix A

Indicators of Effective Early Childhood Assessment from the

NAEYC and NAECS/SDE Position Statement (NAEYC & NAECS/SDE,

2003)

Make ethical, appropriate, valid, and reliable assessment a central part of all early childhood programs. To assess young children's strengths, progress, and needs, use assessment methods that are developmentally appropriate, culturally and linguistically responsive, tied to children's daily activities, supported by professional development, inclusive of families, and connected to specific, beneficial purposes:

1. Ethical principles guide assessment practices.

2. Assessment instruments are used for their intended purposes.

3. Assessments are appropriate for ages and other characteristics of children being assessed.

4. Assessment instruments are in compliance with professional criteria for quality.

5. What is assessed is developmentally and educationally significant.

6. Assessment evidence is used to understand and improve learning.

7. Assessment evidence is gathered from realistic settings
   and situations that reflect children's actual
   performance.

8. Assessments use multiple sources of evidence gathered
   over time.

9. Screening is always linked to follow-up.

10. Use of individually administered, norm-referenced tests
    is limited.

11. Staff and families are knowledgeable about assessment.

Appendix B

Letter to Directors

Dear Director,

I am a Montessori early childhood educator in Oakland who is conducting research for my Master's of Education in Montessori Early Childhood Education at Saint Mary's College of California. I am studying assessment practices as a means for making instructional decisions in Montessori early childhood classrooms. To ensure that my study is valuable to educators and researchers, it is important that I find as many teachers as possible who are willing to complete a survey on their beliefs and practices regarding the subject of assessment.

This research will gather data from Montessori early childhood educators in the San Francisco Bay Area of California. The findings will be published in hopes that the information gathered will help educators explore and improve the methods they use for assessing children and making instructional decisions. It will provide information about what assessment practices Montessori early childhood educators are currently using, what they find to be effective and ineffective, and what obstacles they encounter in gathering, using, and reporting assessment information.

This project has been reviewed and approved by the Saint Mary's College Institutional Review Board for Human Participants in Research. The Institutional Review Board believes that the research procedures adequately safeguard the subjects' privacy, welfare, civil liberties, and rights. Copies of the approved application are available upon request.

I would greatly appreciate your help in distributing the enclosed surveys and stamped envelopes. Could you please distribute one survey and stamped envelope to the lead teacher in each of your primary classrooms?

In appreciation of your support, I would be happy to send you a copy of the completed study.

If you have any questions about this study, or need more surveys and stamped envelopes, please contact me at (xxx) xxx-xxxx or assessmentstudy@gmail.com.

Thank you for your time and consideration.

Sincerely,

Erin Hennigan

Appendix C

Letter to Teachers

Dear Montessori Educator,

I am writing to request your participation in a study of assessment practices in Montessori early childhood classrooms. This study is collecting data from Montessori educators throughout the San Francisco Bay Area. The findings will be published in hopes that the information gathered will help educators explore and improve the methods they use for assessing children and making instructional decisions.

Your help is vital to the success of this study.

Please complete the attached survey and return it using the envelope provided. It should only take about 30 minutes of your time, but your contribution will become a permanent part of the educational dialogue.

Please return your survey no later than February, 15 2008.

This project has been reviewed and approved by the Saint Mary's College Institutional Review Board for Human Participants in Research. The Institutional Review Board believes that the research procedures adequately safeguard the subjects' privacy, welfare, civil liberties, and rights. Copies of the approved application are available upon request.

Your privacy is a primary concern. Survey responses are confidential and will be maintained in a secure location in the St. Mary's School of Education offices.

If you have any questions about this study, or need more surveys and stamped envelopes, please contact me at (xxx) xxx-xxxx or assessmentstudy@gmail.com.

Thank you for your time and consideration.

Sincerely,

Erin Hennigan

Appendix D

Consent Form

CONSENT FOR PARTICIPATION IN A STUDY OF ASSESSMENT AND DECISION-MAKING PRACTICES IN MONTESSORI EARLY CHILDHOOD CLASSROOMS

I agree to participate in a questionnaire created by Erin Hennigan (the researcher), Master of Education candidate at the School of Education at Saint Mary's College of California. The questionnaire is part of a study being conducted by the researcher to gain a better understanding of how teachers assess their students and make instructional decisions in Montessori early childhood classrooms.

I understand and agree to the terms listed below about the nature of my involvement in the study and the way information is used.

My participation in this study is voluntary. I may withdraw and discontinue participation at any time without penalty.

I understand that while the researcher has taken steps to minimize any risk to participants, a minimal amount remains.

I understand that I may choose not to answer any question I feel is of too personal a nature. I will not be identified by name in any report of this study. A composite of the data will protect individual anonymity. All written records will be kept confidential. All surveys will be destroyed at the completion of this study.

The researcher is available to answer any questions I may have concerning this study. He can be reached by phone at xxx-xxx-xxxx or by email at assessmentstudy@gmail.com.

On the basis of the information here, I agree to participate in this study and give my permission to use the information gathered for purposes of research and education.

Print Name: _____   Date: _____

Signature: _____

Appendix E

Teacher Questionnaire

Montessori Early Childhood Education Assessment Practices Questionnaire

SCHOOL AND CLASSROOM INFORMATION

1. How would you classify your school? (check all that apply)

    □ charter   □ private   □ public   □ religious   □ other:_____

2. Is your school accredited?

    □ yes   □ no   □ not sure

    a. If yes, what organization granted the accreditation? _____

3. What is the approximate age range of your school's student population? _____

4. What is the age range of students currently enrolled in your class? _____

5. How many students are currently enrolled in your class? _____

6. How many paid staff members, including yourself, are typically in your classroom at one time? _____

7. How many classrooms at your school serve children between the ages of 3 and 6 years? _____

8. What is the total number of classrooms at your school? _____

ASSESSMENT PRACTICES

9. Do you administer any standardized achievement tests in your classroom?

    □ yes   □ no

    a. If yes, what are the names of the tests? _____

    b. If yes, what are the ages of children that take the tests? _____

10. How many scheduled parent/teacher conferences do you have each year? _____

11. Do you include students in these conferences?

    □ yes   □ no

12. What kinds of information do you refer to when preparing for parent/teacher conferences?

    (check all that apply)

    □ anecdotal records written by teachers

    □ audio/visual records of students' work

    □ checklists of lessons with materials

    □ informal conversations with students

    □ observations of students written by teachers

    □ formal interviews with students

    □ checklists of skills mastered

    □ student portfolios

    □ teacher-made tests

    □ texts and workbooks

    □ standardized tests

    □ other:_____

    □ other:_____

13. What kinds of information do you physically present to parents during formal conferences?

(check all that apply)

    □ anecdotal records written by teachers

    □ audio/visual records of students' work

    □ checklists of lessons with materials

    □ checklists of skills mastered

    □ student portfolios

    □ teacher-made tests

    □ texts and workbooks

    □ standardized test results

    □ other:_____

    □ other:_____

14. *Excluding* scheduled conferences, how do you communicate information about students to parents? (check all that apply)

    □ anecdotal written reports

    □ audio/visual recordings

    □ graded report cards

□ non-graded progress reports

□ student portfolio

□checklists of lessons

□ informal conversations

□ email

□ other: _____

□ other: _____

15. If you record observations of individual students, what kinds of information do you focus on?

(check all that apply)

□ level of concentration

□ activity choices

□ ability to follow classroom rules

□ interactions with peers

□ attitudes

□ location in progression of materials

□ instances of practice with/mastery of materials

□ motor skills

□ level of independence

□ other: _____

□ other: _____

16. How do you record, maintain, and organize information collected on individual students?

(check all that apply)

□ paper files

□ computer files

□ commercially available program or service

Please list the name of the program or service: _____

□ other: _____

□ other: _____

17. Below is a list of methods that teachers use for collecting information about students.

Please **indicate how many times in a typical month (4 week period) you use each**.

anecdotal records written by teachers   _____

audio/visual recordings   _____

checklists of lessons received   _____

checklists of skills mastered   _____

checklists of materials mastered   _____

informal conversations with students   _____

observation of students written by teachers   _____

formal interviews with students   _____

standardized tests   _____

student portfolios   _____

teacher-made tests   _____

texts and workbooks   _____

other:_____   _____

other:_____   _____

18. Please indicate how many times in a typical month (4 week period) you refer to information collected on individual students? _____

19. Please indicate how many times in a typical month (4 week period) you meet with co-teachers in order to discuss information collected on individual students? _____

20. Please indicate how many times in a typical month (4 week period) you rely on your memory of a student when deciding what activity or lesson to introduce? _____

ATTITUDES AND BELIEFS REGARDING ASSESSMENT

21. Do you feel you are currently being supported in your assessment practices?

□ yes   □ no

22. If yes, how are you currently being supported in your assessment practices?

(check all that apply)

□ My school leadership emphasizes the importance of student assessment.

□ I have an effective record keeping system.

□ I have time set aside specifically for assessment tasks.

□ I had pre-service training on assessment practices.

□ I have received in-service training on assessment practices.

□ other: _____

□ other: _____

23. How would you like to be supported in your assessment practices?

(check all that apply)

      □ I would like my school's leadership to emphasize the importance of student assessment.

      □ I would like to have an effective record keeping system.

      □ I would like to have time set aside specifically for assessment tasks.

      □ I would like to have had pre-service training on assessment practices.

      □ I would like to receive in-service training on assessment practices.

      □ other: _____

      □ other: _____

24. Describe the role that your assessment practices play in your overall approach to education.

_____

_____

_____

_____

_____

_____

25. In what ways do you believe your assessment practices are beneficial to you and your students?

_____

_____

_____

_____

_____

_____

26. Please read the following statements and check all that are true for you.

(check all that apply)

      □ I find it difficult to perform assessment practices on a regular, ongoing basis.

      □ I believe that lesson and mastery checklists conflict with the open nature of childhood development.

□ I find it difficult to use information collected on a student in an effective

way.

□ other: _____

□ other: _____

27. What student assessment practices would you like to learn more about?

(check all that apply)

□ record keeping computer software

□ student portfolios

□ audio/visual records of students' work

□ checklists of lessons with materials

□ observation of students

□ formal interviews with students

□ other: _____

□ other: _____

28. Are you interested in attending professional development training, in-service training,

conferences, or workshops on assessment practices?

□ yes   □ no

DEMOGRAPHIC INFORMATION

29. Gender: □ male   □ female

30. What is your age? _____

31. Which of the following best describes your ethnic or racial background?

□ Asian   □ African American   □ Caucasian

□ Latino   □ Mixed ethnicity   □ _____

32. What is your highest level of education?

□ high school   □ associates (AA) or 2 year college degree

□ bachelors or 4 year college degree   □ masters degree

□ doctoral degree

33. How many years have you been teaching early childhood? _____

34. How long have you worked in your current job at this school? ____years

_____months

35. What is the title of your position?

    _____

36. Did you teach prior to your Montessori work?

    □ yes   □ no

    a. If yes, for how long? _____years

37. Do you hold a Montessori early childhood certificate?

    □ yes   □ no   □ will soon

    a. If yes, what type of Montessori certification do you hold? (check all that
        apply):

        □ AMI   □ AMS   □ NCME   □ St. Nicholas   □ Other: _____

38. What organization conducted your Montessori training? _____

39. In what year was your Montessori certificate granted? _____

40. Approximately how many hours did you spend in professional development training,
    in-service, conferences, or workshops *pertaining to assessment practices* in the past
    12 months? _____