

## DOCUMENT RESUME

ED 460 062

SO 033 518

AUTHOR McCusker, Joan  
TITLE Emerging Musical Literacy: Investigating Young Children's Music Cognition and Musical Problem-Solving through Invented Notations.  
PUB DATE 2001-12-00  
NOTE 16p.  
PUB TYPE Reports - Research (143)  
EDRS PRICE MF01/PC01 Plus Postage.  
DESCRIPTORS Classroom Research; Early Childhood Education; \*Music Activities; Observation; Qualitative Research; Young Children  
IDENTIFIERS Developmental Readiness; \*Music Literacy; \*Music Notation; New York (Rochester)

## ABSTRACT

A qualitative study was conducted in the winter of 2000 with children enrolled in a Clef Club, the fourth level of an early childhood music program sponsored by the Eastman School's Community Education Division (Rochester, NY). Eleven participants, ages 4.7 to 6.6, enrolled in 3 sections of the 10-week program taught by the researcher. Classroom videotapes and written transcripts from the 45-minute class sessions provided 30 hours of observational data documenting children's musical behaviors and responses to invented notation tasks. Data from classroom observations, a researcher-designed parental questionnaire, and Gordon's Primary Measure of Music Audiation (PMMA) test scores were analyzed and reported in individual child-profiles documenting each child's musical behaviors over time. These profiles provided multiple lenses for investigating each child's musical behaviors and making comparisons across classes. An assessment inventory was designed to document the range of musical behaviors over time. Data emerging from the study provided insights into children's musical thinking, referred to in the study as children's "emerging musical literacy." Children's invented notations were categorized as pictorial, pictorial-iconic, and iconic. Rhythm was depicted more often than melody. In this study, however, age was not so strong an influence on musical behaviors as was developmental readiness, language literacy, and out-of-school music experiences. An unexpected theme which emerged from the data was how each class of children developed as a "community of learners" and the strong influence this social context had on children's music-making. (Author/BT)

ED 460 062

Emerging Musical Literacy:  
Investigating Young Children's Music Cognition  
and Musical Problem-Solving Through Invented Notations

Joan McCusker, IHM, Ph.D.  
Assistant Professor of Music Education  
Marywood University  
2300 Adams Ave  
Scranton, PA 18509  
Office phone: 570.348.6211 x2531  
Email: mccusker@es.marywood.edu

SO 033 518

PERMISSION TO REPRODUCE AND  
DISSEMINATE THIS MATERIAL HAS  
BEEN GRANTED BY

*Joan McCusker*

TO THE EDUCATIONAL RESOURCES  
INFORMATION CENTER (ERIC)

1

U.S. DEPARTMENT OF EDUCATION  
Office of Educational Research and Improvement  
EDUCATIONAL RESOURCES INFORMATION  
CENTER (ERIC)

- This document has been reproduced as received from the person or organization originating it.
- Minor changes have been made to improve reproduction quality.

- Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

ABSTRACT

In the winter of 2000, I conducted a qualitative study with children enrolled in of Clef Club, the fourth level of an early childhood music program sponsored by the Eastman School's Community Education Division (Rochester, NY). Eleven participants (ages 4.7 to 6.6) enrolled in three sections of the 10-week program. I was the teacher for each section and all received the same instruction.

Classroom videotapes and written transcripts from the 45-minute class sessions provided thirty hours of observational data documenting children's musical behaviors and responses to invented notation tasks. Data from classroom observations, a researcher-designed parental questionnaire, and Gordon's PMMA test scores were analyzed and reported in eleven individual child-profiles documenting each child's musical behaviors over time. These profiles provided multiple lenses for investigating each child's musical behaviors and making comparisons across classes. In addition, I designed an assessment inventory documenting the range of musical behaviors over time. Data emerging from this study provided rich insights into children's musical thinking, what I refer to in this study as children's *emerging musical literacy*.

Children's invented notations were categorized as: (a) pictorial; (b) combination pictorial-iconic; and (c) iconic. Rhythm was depicted more often than melody. In this study, however, age was not so strong an influence on musical behaviors as was developmental readiness, language literacy, and out-of-school music experiences.

An unexpected theme emerging from the data was how each class of children developed as a "community of learners," and the strong influence this social context had on children's music-making.

Word count = 247

Emerging Musical Literacy:  
Investigating Young Children's Music Cognition  
and Musical Problem-Solving Through Invented Notations

Previous studies of children's invented notations have captured children's musical responses to one research task at an isolated point in time. Observable behaviors were analyzed and assumptions made regarding the musical thought processes underlying children's responses. Many of these assumptions have been based on age-related changes or the performance of a specific task. While such studies are necessary in understanding certain aspects of musical development, they are unable to fully account for the diversity of young children's musical behaviors. In these studies the broader contexts surrounding musical development (for example, developmental readiness, language literacy, out-of-school music experiences) have not been addressed. The purpose of this qualitative dissertation study was to explore these broader contexts. I examined the graphic, invented notations created by children ages 5 to 7 to gain an understanding of the cognitive processes underlying children's musical problem-solving and how to foster its development in early childhood environments.

In the winter of 2000, I conducted a qualitative study with children enrolled in of Clef Club, the fourth level of an early childhood music program sponsored by the Eastman School's Community Education Division (Rochester, NY). Eleven participants enrolled in three sections of the 10-week program. I was the teacher for each section and all received the same instruction. Classroom videotapes and written transcripts from the 45-minute class sessions provided thirty hours of observational data documenting children's musical behaviors and responses to invented notation tasks. Data from classroom observations, a researcher-designed parental questionnaire, and Gordon's

PMMA test scores were analyzed and reported in eleven individual child-profiles. These profiles provided multiple lenses for investigating each child's musical behaviors and making comparisons across classes. Data emerging from this study provided rich insights into children's musical thinking, what I refer to in this study as children's *emerging musical literacy*.

In my dissertation I introduce the term *emerging musical literacy* to describe young children's musical development before the onset of formal instruction. The cognitive processes underlying emerging musical literacy encompass active music making (*thinking in music*) and the musical understanding (*thinking about music*) that comes from experiential knowledge. Emerging musical literacy refers to a series of developmental processes, that is, the range of authentic musical behaviors and experiences on a continuum leading to musical understanding (see Figure 1). This theory offers a framework from which to celebrate what children already are as musicians, rather than recognizing only what children can become as musicians. Early childhood music programs should be about developing children's skills and knowledge as music practitioners. In this way we offer children an insider's view of the essence of music by engaging them in the real-life processes of active music making.

For young children it is the process of becoming literate—what researchers refer to as “emerging literacy” (Clay, 1979)—that is as important as the product of literacy achieved. This idea of literacy as an evolutionary process offers educators a broader lens from which to explore the diversity of young children's musical thinking and early literacy behaviors. Children need many varied opportunities for exploration and self-expression through music before the more abstract skills involved in formal note-reading

are introduced. Many of these informal musical moments occur in short bursts, during transition times, or as extensions beyond the formal class activity. If we are to acknowledge these behaviors as having musical meaning, what then becomes the appropriate definition for musical literacy within the early childhood music setting? Knowledge of how young children process musical information, as well as the various stages of children's cognitive development, is essential in designing appropriate early childhood music education programs. We need to recognize the spontaneous musical behaviors and musical understandings children already possess as powerful evidence of emerging musical literacy.

### The Study

Specifically, I set out to investigate children's musical problem-solving through their invented notations. The overarching research question was:

What will children's musical representations (invented notations) of familiar and original music reveal about musical problem-solving abilities and, therefore, emerging musical literacy of children?

The following sub-questions were also examined:

1. What are the music literacy-related behaviors children exhibit in the music class setting?
2. Given the task of creating musical representations (invented notations):
  - a. what salient musical features will be evident in invented notations of familiar songs and familiar rhythmic chants?
  - b. what salient musical features will be evident in invented notations of original music created by the child?

3. What possible influences do the following have on children's emerging musical literacy (EML)?
  - a. age
  - b. gender
  - c. out-of-school experiences
  - d. musical aptitude
  - e. school (developmental) readiness
  - f. language literacy

Using the invented notation studies as a research basis, I collected samples of children's graphic representations of familiar songs and a rhythmic chant learned in class. Children had the opportunity to perform the songs and chant during several class sessions before engaging in the representation task. Children were invited to "put the song down on the paper, using crayons or pencils, so that someone else could come by later and perform it." This type of representational task provides opportunities for the child to engage in music making, reflect upon the experience, and to devise a way of representing the musical event to others (see Figure 2.1 and 2.2). Because of the idiosyncratic nature of representations collected, it was also important to consider children's accompanying verbal explanations. Although certain graphic representations might not appear to include any musical details, the child's verbal explanation often proved otherwise. Such was the case with one young boy who created a graphic representation of the song, Chatter with the Angels (see Figure 3). Bamberger refers to this behavior as reflection-in-action "because the reflecting is embedded in the teacher's and the student's continuing actions rather than in a stop-and-think" (Bamberger, 1991, p. 272). While the child's invented notation remained a unique creation, the accompanying demonstration provided concrete evidence that the child was able to recognize and represent a salient musical element (in this case, steady beat).

Earlier studies of children's invented notations indicated age as a strong influence in how children perceive and choose to represent both familiar and unfamiliar music. In separate studies, researchers exploring children's invented notations found that most 5-year-olds initially created pictorial or abstract representations, with little attention to musical details. By age 7, however, graphic representations began to exhibit a variety of unconventional (invented) symbols, letters, and words, indicating the child's growing awareness of both text and musical dimensions. Over time, there is greater attention given to the music's overarching rhythmic or melodic structure, reflecting the process of children's musical understanding as it unfolds (Bamberger, 1980, 1991; Davidson & Scripp, 1988; Upitis, 1987a, 1990; Gromko, 1994).

This study differs from previous investigations because I was looking at musical development from within the larger framework of children's prior, informal literacy experiences. Such information adds another dimension to our understanding of musical development. Engaging them in authentic, developmentally appropriate musical tasks offers educators the opportunity to observe the strategies children naturally use in solving musical problems. Children would sing or chant softly as they worked on the representation task, sometimes even rocking back and forth with the steady pulse. Physical responses and accompanying verbal explanations revealed their attention to the music, yet often the product (that is, the actual representation) reflected the stronger influence of developmental readiness and language literacy on children's emerging musical literacy.

## Results of the Study

The hierarchy of invented notations found in this study were categorized as: (a) pictorial; (b) combination pictorial-iconic; and (c) iconic. Rhythm was depicted more often than melody. These categories concur with previous research.

In this particular study, however, findings indicated that age was not so strong an influence on musical behaviors as was the difference between children responding only to teacher-initiated activities and those children using familiar music materials for creative self-statements. While some musical responses could be explained by age-related changes, I concluded that musical thinking was not dependent upon age only. Other contributing factors such as language literacy and informal experiences with music in the home became evident throughout the study.

The most exciting discovery for me was to find that these young children were capable of far more sophisticated music making than I had initially expected. Child-initiated responses evidenced real-life musical behaviors such as musical analysis and improvisation. What I found led me to consider a much broader picture of young children's musical understanding.

Five overarching categories of musical behaviors emerged from the data (moving, chanting, singing, playing, graphic representations). Coded transcripts also revealed a hierarchy of musical responses imbedded within these broad categories. I found that children gave a wide range of musical responses across the musical literacy continuum. Responses ranged from simple imitation of teacher-initiated activities to child-initiated music making in which the child gave original musical ideas independent of any teacher-

suggested activity. From these responses I developed an assessment inventory to record the range of children's musical behaviors individually and across class.

An unexpected theme emerging from the data was how each class of children developed as a "community of learners," and the strong influence this social context had on children's music making. For this study I have defined "community of learners" as the social dynamics, both verbal and nonverbal, among class members that facilitate children's musical responses in class and, therefore, emerging musical literacy. It was the evolution of this social identity, unique to each class, that had a significant impact upon children's musical behaviors throughout this study and raised important issues regarding the nature of the learning environment in early childhood music education settings.

Analyzing the musical behaviors across cases, I became aware of a pattern emerging between individual children's musical responses and the underlying social dynamics within each class. Learning experiences occur within and are intrinsically connected to the boundaries and social interactions that define the child's role in the classroom. Evidence indicated that the social dynamics defining each community of learners did, in fact, influence children's musical responses within the classroom setting (see Figure 4).

As a multi-aged setting, Clef Club offered children many opportunities for cross-age social interactions through peer modeling and shared musical learning. For example, when one child extended a teacher-initiated activity by offering a personal musical idea, others in the class would often continue this extension by adding new ideas to the first child's musical motive. Over the 10 weeks, children in classes A and B demonstrated a

variety of child-initiated music activities either as extensions of class activity, during transition times, or in original music making. In contrast, those in class C were slower to develop this sense of belonging to the group. Rather than initiating conversations with one another, they either worked quietly or directed all conversations to me. In addition, children in class C did not initiate any music making on their own, rather, they responded only to teacher-initiated activities. Thus, it became important to explore how the social dynamics within each of the three groups either nourished that community of learners or worked against it. In this study, children's behaviors as a community of learners became a powerful influence on emerging musical literacy, clearly one that I could not overlook and a topic worthy of further investigation by the profession.

### Selected Bibliography

Bamberger, J. (1980). Cognitive structuring in the apprehension and description of simple rhythms. Archives de psychologie, 48, 171-199.

Bamberger, J. (1991). The mind behind the musical ear: How children develop musical intelligence. Cambridge: Harvard University Press.

Clay, M. (1979). Reading: The patterning of complex behavior. Portsmouth, NH: Heinemann.

Davidson, L. & Scripp, D. (1988). Young children's musical representations: Windows on music cognition. In J. A. Sloboda (Ed.), Generative processes in music (pp. 195-230). Oxford, England: Clarendon Press.

Gromko, J. E. (1994). Children's invented notations as measures of musical understanding. Psychology of Music, 22(2), 136-147.

Upitis, R. (1987). Toward a model for rhythm development. In J. C. Peery, I. WW. Peery, & T. W. Draper (Eds.), Music and child development (pp. 54-79). New York: Springer-Verlag.

Upitis, R. (1990). Children's notations of familiar and unfamiliar melodies. Psychomusicology, 9(1), 89-106.

### Emerging Musical Literacy (EML)

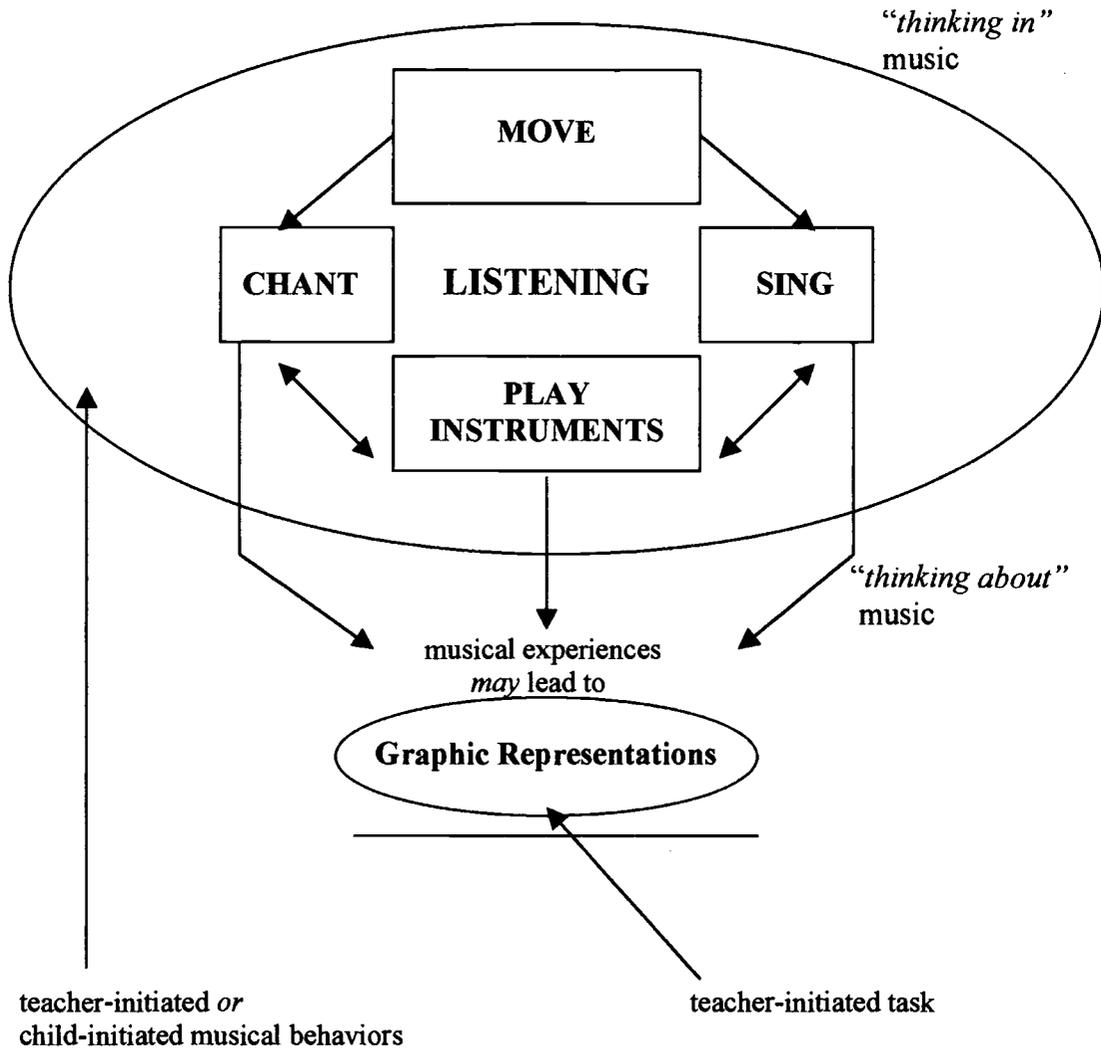
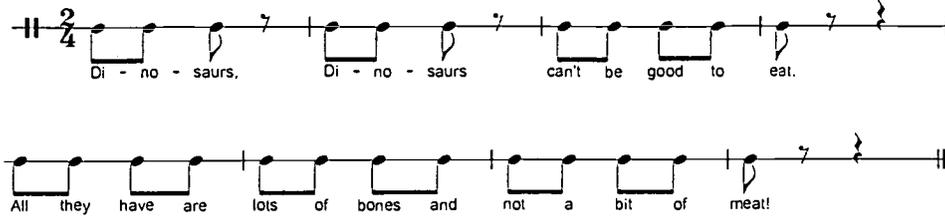
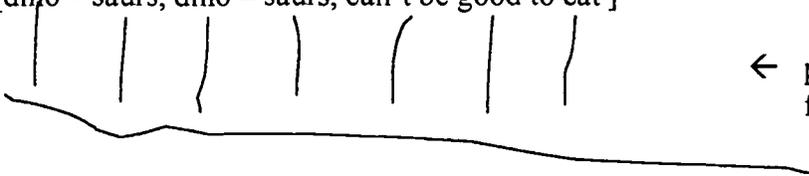


Figure 1. Emerging musical literacy, visual diagram.  
Four inter-related behaviors with music listening as underlying  
thread (development is fluid and context-dependent)



[dino - saurs, dino - saurs, can't be good to eat ]



← pink crayon for first seven strokes

[ all they have are lots of bones and not a bit of meat!]



← light-blue crayon for remaining strokes

Figure 2.1 Hannah (age 5 yrs. 4 mo.) represents the steady pulse (quarter-notes) in opening phrase and strong rhythmic figure (running eighth-notes) in phrase two.



Figure 2.2 Susan (age 6 yrs. 4 mo.) combines pictures and language to depict chant. Draws two green 'dinosaurs,' begins using invented spelling for last phrase then adds brown-crayoned picture for 'meat.'

Chatter with the Angels

Chatter with the an - gels soon in the mor - ning, chat - ter with the an - gels all night long

I hope to join that band and chat - ter with the an - gels all night long

The image shows two staves of musical notation in G major (one sharp) and 4/4 time. The first staff contains the melody for the first line of the song, and the second staff contains the melody for the second line. The lyrics are written below each staff.

(chatter with the angels)

soon

in the morning

chatter

with the

an-

gels

[the child put his name here]

all

night

long)

The drawing shows a child's sketch of an angel with large wings and a halo. Arrows point from various words in the lyrics to specific dots on the drawing, illustrating the child's understanding of the steady pulse of the music. The words are: (chatter with the angels), soon, in the morning, chatter, with the, an-, gels, [the child put his name here], all, night, and long).

Figure 3. Martin (age 5 yrs. 6 mo.) combines pictures and icons to represent steady pulse. Tracing a finger over the crayon dots he explains, "they're talking." Then, pointing to each dot exactly on the steady beat, he sang the song.

|  | Class A                                     | Class B                                     | Class C                                    |
|--|---|---|--|
| social environment of class            | interaction with me<br>with each other      | interaction with me<br>with each other      | interaction with me<br>with each other     |
| music responses as a class (prompts)   | teacher-initiated<br>child-initiated        | teacher-initiated<br>child-initiated        | ONLY teacher-initiated                     |
| sharing of personal music ideas (who)  | yes = Martin<br>no = Hannah<br>Ilana        | yes = Manny<br>Markus<br>Penny<br>Eddie     | yes = Rosie<br>Kelly<br>no = Jake<br>Susan |
| sharing of personal music ideas (when) | transitions<br>extensions<br>improvisations | transitions<br>extensions<br>improvisations | none<br>limited extensions<br>none         |

Figure 4. Visual diagram to display social dynamics observed in each class setting and among classes.



U.S. DEPARTMENT OF EDUCATION  
Office of Educational Research and Improvement (OERI)  
National Library of Education (NLE)  
Educational Resources Information Center (ERIC)



Reproduction Release  
(Specific Document)

**I. Document Identification:**

Title: *Emerging Musical Literacy: Investigating Young Children's Music Cognition and Musical Problem-Solving Through Invented Notations*

Author(s): *Joan McCusker, D.M., Ph.D.*

Corporate Source:

Publication Date: *December 18, 2001*

**II. Reproduction Release:**

In order to disseminate as widely as possible timely and significant materials of interest to the educational community, documents announced in the monthly abstract journal of the ERIC system, Resources in Education (RIE), are usually made available to users in microfiche, reproduced paper copy, and electronic media, and sold through the ERIC Document Reproduction Service (EDRS). Credit is given to the source of each document, and, if reproduction release is granted, one of the following notices is affixed to the document.

If permission is granted to reproduce the identified document, please **CHECK ONE** of the following options and sign the release below.

Permission is granted to the Educational Resources Information Center (ERIC) to reproduce and disseminate this material in microfiche or other ERIC archival media (e.g. electronic) and paper copy

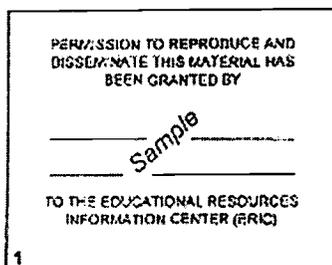
Permission is granted to the Educational Resources Information Center (ERIC) to reproduce and disseminate this material in microfiche and in electronic media for ERIC archival collection subscribers only

Permission is granted to the Educational Resources Information Center (ERIC) to reproduce and disseminate this material in microfiche only

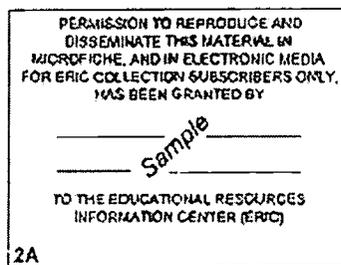
The sample sticker shown below will be affixed to all Level 1 documents

The sample sticker shown below will be affixed to all Level 2A documents

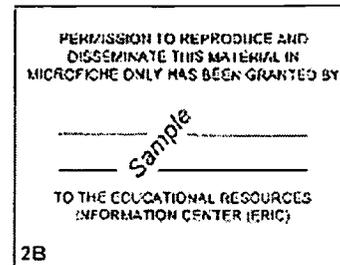
The sample sticker shown below will be affixed to all Level 2B documents



Level 1



Level 2A



Level 2B

Documents will be processed as indicated provided reproduction quality permits. If permission to reproduce is granted, but neither box is checked, documents will be processed at Level 1.

I hereby grant to the Educational Resources Information Center (ERIC) nonexclusive permission to reproduce and disseminate this document as indicated above. Reproduction from the ERIC microfiche or electronic media by persons other than ERIC employees and its system contractors requires permission from the copyright holder. Exception is made for non-profit reproduction by libraries and other service agencies to satisfy information needs of educators in response to discrete inquiries.

Signature: *Joan McCusker, IHM, Ph.D.*

Printed Name: *Joan McCusker, IHM, Ph.D.*

Position/Title: *Assistant Professor of Music Education*

Organization: *Marywood University*

Address: *2300 Adams Ave, Scranton, PA 18509*

Telephone Number: *570-348-6211 x2531*

FAX:

E-mail address: *mccusker@es.marywood.edu*

Date: *December 18, 2001*

### III. Document Availability Information (from Non-ERIC Source):

If permission to reproduce is not granted to ERIC, or, if you wish ERIC to cite the availability of this document from another source, please provide the following information regarding the availability of the document. (ERIC will not announce a document unless it is publicly available, and a dependable source can be specified. Contributors should also be aware that ERIC selection criteria are significantly more stringent for documents which cannot be made available through EDRS).

Publisher/Distributor:

*- NA -*

Address:

Price:

### IV. Referral of ERIC to Copyright/Reproduction Rights Holder:

If the right to grant a reproduction release is held by someone other than the addressee, please provide the appropriate name and address:

Name:

*- NA -*

Address:

### V. Where to send this form:

Send this form to the following ERIC Clearinghouse:

Karen E. Smith, Acquisitions  
ERIC Clearinghouse on Elementary and Early Childhood Education  
University of Illinois at Urbana-Champaign  
Children's Research Center  
51 Gerty Drive  
Champaign, IL 61820-7469  
phone: (800) 583-4135  
fax: (217) 333-3767  
e-mail: [ksmith5@uiuc.edu](mailto:ksmith5@uiuc.edu)