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ABSTRACT

Early Childhood Research and Practice (ECRP), a peer-reviewed Internet-only journal sponsored by the Early Childhood and Parenting (ECAP) Collaborative at the University of Illinois at Urbana-Champaign, covers topics related to the development, care, and education of children from birth to approximately age 8. The journal emphasizes articles reporting on practice-related research and on issues related to practice, parent participation, and policy. Also included are articles and essays that present opinions and reflections. The first part of this issue of ECRP features commentary (James Lonigan) on a study of preschool models and later school success (Rebecca Marcon) that was published in the Spring 2002 issue of ECRP. Marcon's reply to this commentary is also featured, along with an introduction to the discussion (Lilian G. Katz). The second part of the journal issue presents five articles as follows: (1) "The Gift of Time: Enactments of Developmental Thought in Early Childhood Practice" (M. Elizabeth Graue, Janice Kroeger, and Christopher Brown); (2) "Instant Video Revisiting for Reflection: Extending the Learning of Children and Teachers" (Seong B. Hong and Jane T. Broderick); (3) "Understanding the Relationships among American Primary-Grade Teachers and Korean Mothers: The Role of Communication and Cultural Sensitivity to the Linguistically Diverse Classroom" (Heayoung Yang and Mary Benson McMullen); (4) "Preschool Teachers' Play Experiences Then and Now" (Annette Sandberg and Ingrid Pramling Samuelsson); and (5) "Applying an Analytic Writing Rubric to Children's Hypermedia 'Narratives'" (Michael S. Mott, Cynthia Etsler, and Deondra Drumgold). The issue concludes with both English and Spanish-language versions of an article describing a project on bones undertaken by 5-year-

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Lilian G. Katz
Editor

Dianne Rothenberg
Associate Editor

Laurel Preece, Managing Editor
email: ecrp@ericps.crc.uiuc.edu

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Lilian G. Katz
University of Illinois at Urbana-Champaign

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In this issue of *Early Childhood Research & Practice,* we are pleased to include the comments of Professor Christopher Lonigan on the article by Professor Rebecca Marcon titled "Moving up the Grades: Relationship between Preschool Model and Later School Success," published in volume 4, number 1, Spring 2002, and Professor Marcon's response to those comments. This kind of scholarly exchange is precisely what we had hoped to encourage by distributing a press release announcing the publication of Marcon's paper, and we hope that readers will find it engaging. In addition, we hope that addressing this topic and the complexities of conducting reliable longitudinal research will lead to a stronger commitment to supporting more such research. Professor Lonigan's suggestion that the distribution of the press release may have been "more about politics than about science" and his reference to "politically motivated dissemination of misinformation" should not distract us from the important issues he raises about how to interpret the complex data presented by Marcon.

Professor Lonigan is associate professor of psychology at Florida State University and associate director of the Florida Center for Reading Research (http://www.fcrr.org/). He has worked with Grover "Russ" Whitehurst, director of the Institute of Education Sciences, on emergent literacy and related issues, including the development of the National Center for Learning Disabilities' "Get Ready to Read" screening tool (http://www.getreadytoread.org/research.html). Recent publications include "Development and Promotion of Emergent Literacy Skills in Preschool Children At-Risk of Reading Difficulties" in *Preventing and Remediating Reading Difficulties: Bringing Science to Scale* (B. Foorman, ed.), and "Temperamental Basis of Anxiety Disorders in Children" (with B. M. Phillips) in *The Developmental Psychopathology of Anxiety* (M. W. Vasey & M. R. Dadds, eds.).

Professor Marcon is a developmental psychologist and a professor of psychology at the University of North Florida. After working as a school psychologist in the barrios of East Los Angeles, she has held faculty positions in the Departments of Psychology at Clemson University, Davidson College, and the University of North Florida. She was also a senior research associate in the District of Columbia Public Schools where she initiated an ongoing longitudinal study of early childhood educational practices. The research reported here has been ongoing for more than a decade, and reports of its findings have been

published in *Early Childhood Research Quarterly, Developmental Psychology,* and other scientific journals in the field.

The issues involved in this exchange matter a great deal to all who work with young children, as we struggle to understand more fully the nature of short- versus long-term effects of the pedagogical approaches we take. It is difficult to obtain hard data on the big issues (it is fairly easy to do so on the little ones, like knowledge of the alphabet) because the definitive experiments that would be required to provide the hard data may often be unethical to conduct.

The problem is not *political* but *ideological.* Ideologies are deeply held beliefs that fill the vacuum created by the unavailability of hard data. Our best strategy in such situations is to make our ideas and the data that we do have readily available to others who can subject them to vigorous argument and debate.

We are grateful to both contributors to this discussion for helping us to think more clearly about how best to approach the scientific as well as pedagogical issues involved in supporting our young children's growth, learning, and development.

Contribute to the Discussion

If you would like to contribute to an ongoing discussion of the issues raised in Marcon's article, Lonigan's commentary, or Marcon's response to the commentary, please offer your comments here. *ECRP* editors will add substantive comments to a Comments section appended to these articles. The editors may do minor editing of comments.

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Comment on Marcon (*ECRP*, Vol. 4, No. 1, Spring 2002): "Moving up the Grades: Relationship between Preschool Model and Later School Success"

Christopher J. Lonigan
Florida State University

Abstract

Commenting on Rebecca Marcon's study, which indicated that an academically oriented preschool model had negative effects in later school years, this article calls into question the study's data analyses and interpretations. The commentary asserts that there were no reliable differences in report card grades between children who attended academically directed (AD), child-initiated (CI), or middle-of-the-road (M) preschool classes by either third or fourth grades once conventional levels of statistical significance are used; a lack of follow-up analyses allows no interpretation of grade-by-preschool interaction; it was unclear how children who had been retained in grade by third grade were included in a follow-up study; and the significantly higher likelihood of retention prior to grade 3 for children who participated in CI and M type preschools is a clear finding glossed over in Marcon's report. The commentary also raises questions about the potential differences in factors responsible for preschool selection because type of preschool and preschool model were confounded in the study, and about potential context effects in the study. The commentary concludes by reiterating that the most significant finding of Marcon's study was given the least attention: that children who attended AD preschool were one-half as likely to be retained in grade by third grade than were children who had attended CI and M Model preschools.

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I was surprised the day that the press release about the article published in *Early Childhood Research & Practice,* the online journal started by the ERIC Clearinghouse on Elementary and Early Childhood Education, showed up in my mailbox. Within that press release were an intriguing set of quotations that suggested that the article by Rebecca Marcon provided clear evidence on the effects of different preschool models. I suppose that the press release did its job, at least for me, because within a few hours I was downloading the article to read (http://ecrp.uiuc.edu/v4n1/marcon.html; "Moving up the Grades: Relationship between Preschool Model and Later School Success"). Interestingly, the press release read as

if this study provided the clear answer to questions concerning the impact of different approaches to early childhood education—despite the well-known tenet of science that no single study serves as the arbiter of any question. Yet, one of the current "battles" in early childhood education is between those who believe that anything other than a child-initiated model is developmentally inappropriate and those who believe that it is possible, developmentally appropriate, and desirable to teach children some of the skills that will help them succeed once their "formal" education starts in kindergarten and first grade. Hence, it is possible that the press release was more about politics than about science.

The bottom-line message of the article was that an academically oriented preschool model had negative effects that resonated through the early school years. I will admit, up front, that I have significant doubts that a sensible teacher-directed early childhood curriculum will have negative impacts on children. Yet, I am interested in looking at the evidence. After reading the report of the study, I believe I have some reasonable questions about the study's design and description, and I believe that these questions raise the issue of whether this study provides very much information about the effects of early childhood programs.

First, there is the issue of Type 1 error. The purpose of conducting inferential statistics on data is to prevent the support of conclusions based on spurious results. In inferential statistics terms, this means that we are typically willing to accept results if they are likely to occur by chance no more than 5 out of 100 times (i.e., $p < .05$). The analysis of multiple nonindependent outcome measures results in an increase in familywise error. That is, the likelihood of a spurious result is increased when multiple tests are conducted (i.e., the inferential probabilities are based on the assumption of independence). Most generally, researchers who conduct multiple inferential tests on measures that are not independent adjust their "alpha" levels to hold familywise error at the conventional .05 level. By contrast, Dr. Marcon reports the results of 12 nonindependent comparisons for preschool type and 12 nonindependent comparisons for gender in each of two years. Even if we forget about the gender comparisons and the multiple years, a typical correction (e.g., modified Bonferroni procedure) would require adjusting the alpha to $p < .004$ to maintain familywise error at $p < .05$. Rather than adjusting the alpha, Dr. Marcon interpreted the comparison that yields that largest group difference as significant at $p = .07$! Therefore, the real answer from the data in this study is that there were no reliable differences in report card grades between children who attended academically directed (AD), child-initiated (CI), or middle-of-the-road (M) preschool classes in either the third or fourth grades, given that the above-mentioned $p = .07$ finding was the only contrast that even came close to being significant.

Second, analyses follow a typical order that takes into account how the different effects are decomposed. Significant results from analyses have a set of appropriate follow-up contrasts that allow the significant results from the main analyses to be interpreted. One typically examines the interaction first (here it comes last) in a sequential analysis because the main effects are interpretable only in the absence of an interaction. So, what about the interaction between year of assessment and preschool type? Here the article is on a little more stable ground in terms of Type 1 error—same 12 comparisons; same adjustment needed; but at least there are some statistics at less than the conventional $p < .05$ level. What if only overall GPA had been examined (instead of overall GPA as well as the GPA for the 11 specific subject areas)? In this case, there would be one comparison, and at $p < .05$, it is clear (despite the fact that the column in the table appears to be mislabeled) that there is a significant grade by preschool model interaction. Because it is already known that there are no group differences on this variable at either grade 3 or grade 4, one would need to conduct appropriate follow-up tests to interpret the significant interaction. What would one test? Perhaps one would want to know if the change from grade 3 to grade 4 was significant for each of the three groups. Perhaps one would want to know if the rate (or direction) of change differed significantly for all three groups, rate of change for one group differed significantly from the other two, or if rate of change for one group differed significantly from only one other group. None of these tests was reported. Therefore, the article provides no information on how to interpret the interaction—other than to know that it does not result in a significant difference between the groups at grade 4 (or grade 3).

The comparisons and discussion of Type 1 error above are complicated by the fact that there seem to be different children included in the different analyses. That is, the children included in the analyses comparing children from different preschool models across years represent a subset of children in the preschool model comparison for the separate years. It is not clear why a single set of analyses on children for whom data were available in both years was not what was reported.

Third, the information reported in the article limits what we know about what was actually tested. The article notes that 20% of the sample had been retained in grade by the third grade. The article further notes that children who had attended CI and M preschools were significantly more likely to have been retained in grade prior to the third grade than children who attended AD preschools—and this difference was very strong for the boys. There is a single sentence in the article that reads, "The academic performance of children who were 'on schedule' at the end of Year 5 (grade 3), as well as performance of children who had been retained prior to third grade, was examined in this follow-up study" to describe the children included in the sample. What does this mean? How were those children who were retained in grade—the majority of whom came from CI and M preschools—included in the sample?

The answer to this question could have significant influence on the results. Was it the case that the data for children retained in grade were collected in Year 6 and Year 7 so that they contributed report card grades from their third- and fourth-grade classes (like the students who were not retained)? Was it the case that whatever grade they were in at the time of Year 5 and Year 6 were the grades from which report cards used? One can imagine that you are likely to receive better grades the second time you complete a particular grade than the first time you completed it. Hence, if 20% of children who had been in CI and M classrooms contributed report cards from their repeat of a grade, it is perhaps not surprising that they appear to have higher grades (leaving aside for the moment the likelihood that teachers may be more inclined to give higher grades to children who have already repeated a grade). Moreover, children from AD preschools are contributing grades based on significantly more difficult material under this scenario. If 20% of children who had attended CI and M preschools contributed data after an extra year of schooling (i.e., their third- and fourth-grade report cards were used), would it not be expected that they would do better than children with less time in school? Certainly, one of the most consistent findings from educational research is that more time-on-task predicts higher scores.

In either case, there is something of an apples and oranges comparison being made here. However, it would not be very informative to conduct the comparison excluding children who were retained in grade—except to provide a very weak test of the author's preferred hypothesis—because only the most academically capable children would still be included in the CI and M preschool groups. However, it would perhaps be telling—except that it would be confirmation of the null hypothesis—if children from AD preschools scored as well as children from CI or M preschools once those children retained in grade were excluded from the analysis. More telling would be if children from AD classrooms scored better than children from CI or M preschools once children retained in grade were excluded from the analysis.

It seems that one clear result that is being glossed over in the article is the significantly higher likelihood of retention prior to grade 3 for children who participated in CI and M preschools. One could almost declare that the "game" was over at that outcome, and CI and M had lost. Imagine a scenario in which the outcome is not report cards but quality of life following a medical procedure. If twice as many patients in one group die as in another group, there can be no question asked about quality of life (i.e., there is no quality of life when you are dead). I suppose that it is open to debate whether one can ask about school success after twice as many children in one group than in another group have already failed—although some recent reviews suggest that grade retention is a significant risk factor for negative school outcome (Jimerson & Kaufman, 2003).

Fourth, it also seems to me to be reasonable to ask about the potential differences in (perhaps unmeasured) factors responsible for preschool selection because type of preschool and preschool model were confounded in the study. That is, none of the Head Start preschools was classified as Model AD (based on the description provided, it is not possible to deduce if any were classified as Model M). However, Head Start preschools contributed 16% of the sample. If the Head Start classes were excluded, what would the proportion of Model CI and Model M classrooms have been? Given the different admissions criteria for Head Start and other preschools, such a confound between preschool models and type of preschool is potentially significant. A strong test would require that the apparent impact of Model CI classrooms not be dependent on Head Start classes (e.g., by replicating the effect with Head Start classes excluded from the analyses). In the absence of such a demonstration, the effect—if actually present once the retention issue was worked out—could not be unambiguously attributed to preschool model.

Finally, I think it is not unreasonable to ask about potential context effects in the study (e.g., overall

achievement at a particular school). Were children from the different preschool models equally likely to attend the same schools? Given the potentially subjective nature of report card grading (e.g., use of a grading "curve"), it is possible that children with quite different scores on their report cards had very similar abilities. It is a bit surprising that there was no attempt to include data from the district's standardized assessment of achievement, which in most districts is administered by the fourth grade. Such an assessment would allow an examination of how well report cards reflected student ability. In the absence of such data, it would be useful to control for context effects in the analyses.

It is absolutely reasonable and important to ask about the long-term effects of different preschool models. Significantly, the purpose of conducting scientifically valid examinations of educational practices is to understand how best to serve the needs of young children. Such decisions need to be based on the best scientific methods. The costs of poor decisions are far too high—both to the children and to society. Ultimately, the quality of the decisions is based on the quality of the evidence used.

Whereas I do not think *a priori* that academically oriented preschool experiences are harmful to children, I also do not believe that preschools should look like first- or second-grade classrooms with children spending most of their time sitting at desks or tables engaging in "academics" or "drill and kill" activities. There is a significant difference between thinking that preschool teachers can provide children with directed activities designed to promote the development of some skill and thinking that children should be engaged in some activity more appropriate for a first- or second-grade student. Parents engage in age-appropriate directed learning activities all the time; however, we do not ask if an engaged parent is ruining his or her child's intrinsic motivation for learning. Similarly, a skilled preschool teacher can engage children in responsive and interesting educational, academically oriented, activities in ways that both foster children's skills and provide enjoyment for the children. In many cases, children will, in fact, choose these same activities when they are in a free-choice period. Hiding academically relevant experiences until children are in kindergarten does not seem to be the way to promote a love of knowledge and learning.

What seems most compelling about the results reported in this study is the finding that is given the least attention. That is, children who had attended AD preschools were one-half as likely to be retained in grade by the third grade than were children who had attended CI and M preschools. What are the consequences—both in terms of socioemotional development and academic development—of being retained in grade by third grade? What impact does such early retention have on intrinsic motivation for learning? These are important questions. What is clearly not true based on the results of this study is the claim made in the article's abstract that "Children's later school success appears to have been slowed by overly academic preschool experiences that introduced formalized learning experience too early for most children's developmental status."

Let's let good science decide the best way to help children succeed in school and in life. Ultimately, what are needed are randomized controlled studies that allow unambiguous attributions of causality. Such studies are difficult and costly to conduct. However, the future of children is far too significant to let the issue be decided by fallible information. It is unlikely that the needs of children are best served by what at times seems like politically motivated dissemination of misinformation. The field needs to agree on the desired outcomes and how to measure them. Then, we can collect data that will be informative on the best way to help children achieve those outcomes.

Reference

Jimerson, S. R., & Kaufman, A. M. (2003). Reading, writing, and retention: A primer on grade retention research. *Reading Teacher, 56*, 622-635.

Author Information

Christopher Lonigan is a professor of psychology at Florida State University and associate director of the Florida Center for Reading Research. His primary research interests include the development of emergent literacy skills during the preschool period and how these skills impact later reading, development of assessment instruments that measure the key areas of emergent literacy, and evaluation of preschool interventions and curricula designed to prevent reading difficulties for preschool children who are at-risk for later academic problems. Other interests include psychiatric disorders in children as well as the overlap between psychiatric disorders and problems in reading. Recent publications include "Development and Promotion of Emergent Literacy Skills in Preschool Children At-Risk of Reading Difficulties" in *Preventing and Remediating Reading Difficulties: Bringing Science to Scale* (B. Foorman, ed.),"Family Literacy and Emergent Literacy Programs" and "Assessment of Children's Pre-literacy Skills" (with K. Keller and B. M. Phillips) in *Handbook on Family Literacy: Research and Services* (B. Wasik, ed.), and "Temperamental Basis of Anxiety Disorders in Children" (with B. M. Phillips) in *The Developmental Psychopathology of Anxiety* (M. W. Vasey & M. R. Dadds, eds.).

Christopher J. Lonigan
Florida State University
Department of Psychology
One University Way
Tallahassee, FL 32306-1270
Email: lonigan@psy.fsu.edu

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Reply to Lonigan Commentary

Rebecca A. Marcon
University of North Florida

Abstract

Responding to Lonigan's commentary on her preschool models study, Marcon clarifies points from the original article and provides findings from a reexamination of the data to answer Lonigan's questions. The response first addresses the issue of retention, reiterating the possible reasons for the lower retention of students in an academically directed (AD) preschool and focusing on one: family income influences on early grade retention. It is noted that lower-income children were more likely than higher-income children to have been retained prior to third grade, and none of the Head Start children had been enrolled in an AD model preschool. Stating the rationale for analyzing data by year in school rather than by grade, thus accounting for grades repeated, the commentary points out that selection of report card grades as an outcome measure might be seen as favoring the AD approach in a school system where grades reflect number of objectives mastered in the competency-based curriculum. Lonigan's suggestions for how to deal with retained children in a longitudinal analysis prompted a reexamination of the data. The response then highlights several conclusions that stand out in the reexamination. First, the impact of the CI model on children's grades was not dependent on Head Start classrooms. Second, the decline in grades associated with the AD model was more evident among children who had never been retained. Significant correlations between report cards and scores on the standardized achievement test battery administered for the first time in third grade were found in all subject areas as well as between children's GPA and total test battery score; thus report card grades were reasonable outcomes to evaluate as an indicator of children's academic abilities. Finally, the response revisits the distinctions between different approaches, pointing out that the preschool models contrasted in the study were empirically derived and reflect a continuum of experiences not an either/or categorization. The response concludes by pointing out that although the study does not provide "the answer" to questions concerning the impact of different approaches, it does help in understanding what facilitates or possibly hinders children's progress through school by demonstrating difficulties that graduates of AD preschools encounter.

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Marcon response to Lonigan commentary
Editor's introduction to the discussion

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I read with interest Professor Lonigan's comments and welcome the opportunity to address concerns he has raised. In this response, I will clarify points that were unclear in the original article and provide findings from a reexamination of the data to answer Professor Lonigan's questions.

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The issue of retention is clearly one that deserves further attention. Because I do agree with Lonigan and others that being retained in grade places the child at risk for negative school outcomes, possible reasons for the lower retention rate of Model AD children prior to third grade were discussed at length in the original article. These reasons included (1) greater continuity between the Model AD preschool experience and educational practices in the primary grades, (2) family income influences on early grade retention, and (3) the competency-based system of promotion that emphasized basic reading and arithmetic skills regardless of performance in other subject areas. After reading the commentary, I explored further the second possible explanation because "lower-income children were more likely than higher-income children to have been retained prior to third grade ($p = .01$)," and no Head Start children had been enrolled in Model AD preschools. Indeed, more Head Start children (35% of Head Start sample) than those who had attended pre-kindergarten (17% of pre-k sample) had been retained prior to third grade, $X^2(1, N = 159) = 3.64, p = .056$. Although no difference ($p = .92$) in retention rates between CI and M preschools attended by Head Start graduates was found, differential rates of retention were noted for pre-k graduates, $X^2(1, N = 133) = 4.35, p = .11$. Among pre-k graduates, the Model CI retention rate was as expected (~15%), whereas more Model M (~26%) and somewhat fewer Model AD graduates (~10%) than expected had been retained. Thus, in the full sample, the notably lower retention rate of children who had attended AD preschools could be partially attributed to these children being less poor. Lonigan's statement declaring the "game" over for Model CI is premature.

As described by Lonigan, the issue of retention does indeed complicate analysis of longitudinal data. Among researchers, there is, however, no agreed upon strategy for handling the problem. I took a developmental approach because number of years in school rather than grade may better reflect children's development during the early elementary years when progress is often uneven. The original article reported on children's progress after 5 years and 6 years of schooling, regardless of their retention status. Yes, it was the case that whatever grades children were in at the time of Year 5 and Year 6 were the grades from which report cards were used. Of those children who had been retained prior to third grade (Year 5 of school), 74% had repeated first grade and 26% had been retained at the end of second grade. Retained children did not contribute report cards from their repeat of third grade in the Year 5 analysis. In the Year 6 analysis, there were 10 third-graders who had been retained for the first time in third grade. A comparison of these 10 children's Year 5 (third grade) and Year 6 (repeated third grade) grade point average (GPA) showed they earned higher grades the second time around ($p = .04$)—with no model x year interaction noted ($p = .98$). Therefore, Lonigan is correct in predicting that children would receive better grades the second time they completed a particular grade than the first time, and that is another reason why I chose to analyze the data by year in school rather than grade in school. All children had an equal amount of time in school.

Although the approach I took is a reasonable one, it does not fully solve the dilemma of what to do with retained children in a longitudinal study. I agree with Lonigan's point that this strategy could be problematic because more "children from AD preschools (would be) contributing grades based on significantly more difficult material" due to fewer AD children in the overall sample having been retained. I was very interested in Lonigan's suggestions for dealing with this difficult problem because, contrary to his assertion that I had a preferred hypothesis in mind, I have always been interested in finding what, if any approach, would best prepare at-risk children to succeed in school. In fact, it is easy to see in published reports of the preschool findings (e.g., Marcon, 1999) and in my discussions with researchers and policy makers across the years that I expected to support the null hypothesis of no significant difference between models. If anything, the selection of report card grades as an outcome measure might be seen as favoring the AD approach in a school system where grades reflect number of objectives mastered in the competency-based curriculum. I was surprised that my initial preschool findings favored the CI approach and, therefore, proceeded to replicate earlier findings with two additional cohorts before publishing them in *Developmental Psychology*. After reading the commentary, I was eager to reexamine the data using the comparisons Lonigan proposed, although I, too, agreed that no single study could definitively answer questions about long-term effectiveness of varying preschool models.

Before presenting results of comparisons suggested by Lonigan, I would like to explain why Type I familywise (α_{FW}) error rate is not as great a worry in this study as the commentary implies. Yes, α_{FW} error can be a problem when conducting multiple statistical analyses. That is why I first analyzed children's overall GPA as a composite score. When this composite score was found to be statistically significant ($p < .05$) or approaching statistical significance ($p < .10$), univariate analyses of individual subject areas contributing to

the overall GPA were performed to aid in interpretation of findings. Year 5 and Year 6 findings for all retrieved children from the original preschool study were presented as background information for understanding the main focus of the research—transition from Year 5 to Year 6. To me the most interesting aspect of the study was the longitudinal component that could help us better understand what approaches might facilitate or hinder academic performance across this notoriously difficult transition in children's school careers.

Two points regarding error need to be addressed. First, in each yearly analysis, three statistical tests were performed on the composite GPA (one each for the A main effect: Preschool Model, the B main effect: Children's Sex, and the A x B interaction). Although these three tests were performed, "these tests are conceptualized as each constituting a separate family of tests...(with) questions of the A main effect... representing one family of questions to be addressed...Questions of the (B) main effect and interaction are considered separately because they represent conceptually distinct questions...Thus, although the alpha level for the (study) as a whole is allowed to exceed .05, the α_{FW} rate is set at .05 for each of the three families under consideration" (Maxwell & Delaney, 1990, pp. 259-260). Second, in field research, somewhat higher alpha levels than the conventional .05 level can be used if the researcher wishes to also avoid Type II error (accepting a false null hypothesis). Because of the quasi-experimental design of this study and noise associated with an array of uncontrolled error across the 5 years, I did report findings at a higher than conventional alpha level ($p < .10$). By doing so, I acknowledge that the Year 6 composite GPA result for Preschool Model ($p < .07$) is not as reliable as other reported findings that meet the conventional $p < .05$ criteria.

I should have clearly stated in both the Abstract and the Discussion that my interpretation of what happened in children's sixth year of school was based on the subsample of children for whom data were available on both sides of the Year 5 to Year 6 transition. For this transition subsample, the Model x Year interaction was significant ($p = .02$), and posthoc comparisons indicated (1) marginal increases (6%) for CI children, $F(1, 44) = 3.04$, $p = .09$; (2) nonsignificant decreases (4%) for M children, $F(1, 48) = 2.18$, $p = .15$; and (3) marginal decreases (8%) for AD children, $F(1, 41) = 3.25$, $p = .08$. But how would these findings hold up in comparisons that excluded children who had been previously retained? Would findings be similar for comparisons that included only those children who had attended pre-kindergarten and excluded Head Start graduates?

These are excellent questions, and the following table summarizes results of preschool model comparisons for children's GPA.

Preschool Model Comparison for Children's GPA

Year	All Children	Grade	"On Schedule" Children (excluding retained)
5	F (2, 153) = .47, p=.62	3	F (2, 119) = .67, p=.51
6	F (2, 176) = 2.68, p=.07 CI > AD (p<.10) M = AD CI = M	4	F (2, 120) = 5.67, p=.004 CI > AD (p<.10) M > AD (p<.01) CI = M
5 to 6	Model x Year F (2, 135) = 4.11, p=.02 ↑CI: F(1, 44) = 3.04, p=.09 ↓M: F(1, 48) = 2.18, p=.15 ↓AD: F(1, 41) = 3.25, p=.08	3 to 4	Model x Year F (2, 107) = 3.92, p=.02 ↑CI: F(1,30) = 1.23, p=.28 ↓M: F(1, 31) = 1.70, p=.20 ↓AD: F(1, 34) = 5.67, p=.02
			"On Schedule" Pre-K Children

Year	All Pre-K Children (excluding Head Start)	Grade	(excluding retained) (excluding Head Start)
5	F (2, 127) = .35, p=.71	3	F (2, 80) = 3.91, p=.02 CI > AD (p<.10) M > AD (p<.05) CI = M
6	F (2, 145) = 4.36, p=.02 CI > AD (p<.01) M = AD CI > M (p<.10)	4	F (2, 80) = 5.90, p=.004 CI > AD (p<.01) M > AD (p<.05) CI = M
5 to 6	Model x Year F (2, 112) = 4.08, p=.02 ⬆CI: F(1, 28) = 2.33, p=.14 ⬇M: F(1, 41) = 2.63, p=.03 ⬇AD: F(1, 41) = 2.42, p=.08	3 to 4	Model x Year F (2, 80) = 4.03, p=.02 ⬆CI: F(1, 22) = 1.54, p=.23 ⬇M: F(1, 25) = 4.77, p=.04 ⬇AD: F(1, 31) = 5.50, p=.03

Several conclusions stand out in this reexamination of findings. First, the impact of Model CI on children's grades was not dependent on Head Start classrooms. Second, the decline in grades associated with Model AD was more evident among "on schedule" children. This school system's competency-based grading system makes it difficult to assume that differences between models were the result of differential grading practices. Forty-three percent of the schools in this follow-up study contributed data for children from two or three different models. Significant correlations ($p < .001$) between report cards and scores on the standardized achievement test battery administered for the first time in third grade were found in all subject areas as well as between children's GPA and total test battery score ($r = .67$). Thus, report card grades are reasonable outcomes to evaluate as an indicator of children's academic abilities.

At this point, it would be useful to revisit the distinctions between models because Professor Lonigan's commentary does not accurately describe the different approaches. Model CI preschool teachers do not "hide academically relevant experiences until children are in kindergarten" as suggested by Professor Lonigan. And, like a parent who knows how to individualize a learning opportunity to match the interests, age, and skill level of a child, the CI preschool teacher also does so for the individual children in his or her classroom. The CI classroom is not void of any teacher-directed activities; CI teachers do initiate activities when they are needed to facilitate children's learning.

The preschool models contrasted in this study were empirically derived and reflect a continuum of experiences, not an either/or categorization. The labels placed on varying models are just shorthand descriptors for an array of beliefs and practices that differentiate these approaches (see Marcon, 1999, for a complete description). For example, when describing their practices regarding initiation of activities in a preschool classroom using a 10-point scale (1 = teacher initiated and 10 = child initiated), CI teachers had a median score of 8. AD teachers had a median score of 3. When describing their goals for preschool children on a 10-point scale (1 = academic preparation and 10 = social and emotional growth), CI teachers had a median practice score of 8 and AD teachers' median score was 4. When describing the learning format of their preschool classroom on a 10-point scale (1 = group-oriented and 10 = individualized one-to-one), CI teachers had a median score of 8, and AD teachers a 5. Perhaps the best way to summarize differences between approaches is to contrast CI and AD with Model M teachers who attempt to combine approaches. While the CI teacher does initiate classroom activities when needed to facilitate children's learning, the Model M teacher is notably more engaged in leading groups of children in less-individualized activities for greater periods of time. Compared to the AD teacher, the Model M teacher allows children greater access to

classroom materials, encourages peer interaction, and initiates fewer teacher-directed cognitive activities that are not integrated with other developmental domains. In all three approaches, preschool children are being exposed to academically relevant experiences. The difference is how these experiences are introduced and the extent to which they are balanced with other developmental domains that also prepare children to succeed in school.

Does this follow-up study provide "the answer" to questions concerning the impact of different approaches to early childhood education? Of course not. That was just hype in a press release designed to draw attention to an ongoing debate within the field. Does the study help us to better understand what facilitates or possibly hinders children's progress through school? Yes, despite the difficulty of conducting field research with all the inherent confounds and problems we encounter in real-world settings, the reexamination of these data demonstrates difficulties that graduates of AD preschools encounter. What we still need to know is why this is the case.

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Author Information

Rebecca A. Marcon, Ph.D., is a developmental psychologist and a professor of psychology at the University of North Florida. She received her B.A. in psychology from California State University-Fullerton and her M.A. from the University of California, Los Angeles. After working as a school psychologist in the barrios of east Los Angeles, she left California to pursue her Ph.D. in developmental psychology at Louisiana State University. Since completing her Ph.D., she has been a faculty member in the Departments of Psychology at Clemson University, Davidson College, and the University of North Florida. She was also a senior research associate in the District of Columbia Public Schools where she initiated an ongoing longitudinal study of early childhood educational practices. Her research interests include social and language development, early intervention, and public policy. She continues to serve young children and families in the District of Columbia Public Schools as a researcher and consultant. Dr. Marcon also is actively involved with Head Start programs serving young children in northeast Florida. She is a member of the *Early Childhood Research Quarterly* Editorial Board and has served as a Research in Review Editor for *Young Children.*

Rebecca A. Marcon, Ph.D.
Department of Psychology
University of North Florida
4567 St. Johns Bluff Road, South
Jacksonville, FL 32224-2673
Office Bldg. 39-4072
Telephone: 904-620-2807
Fax: 904-620-3814
Email: rmarcon@unf.edu

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The Gift of Time: Enactments of Developmental Thought in Early Childhood Practice

M. Elizabeth Graue
University of Wisconsin-Madison

Janice Kroeger
Kent State University

Christopher Brown
University of Wisconsin-Madison

Abstract

This article explores the relationship between notions of development and practice in early education. Through an interpretive study of the experience of the "gift of time," the article follows small groups of children who delayed kindergarten entry, those who were relatively young but entered on time, and children retained in kindergarten to gain an understanding of how time promotes development. The article examines how ideas about typical development override attention to individual development. Further, such ideas promote a teacher-distant approach in which opportunities to scaffold learning are frequently missed. The article suggests heightened attention to *developmentally responsive practice*—practice that utilizes both knowledge of typical development and particular knowledge of specific children.

Introduction

Early childhood practice is framed by two distinct and sometimes contradictory ideas. On the one hand, there is a commitment to a developmental approach to learning (Katz, 1997), in which development is seen as patterned, episodic, and uneven. From this perspective, we have expectations for children at given ages that guide our practice (Kohlberg & Mayer, 1972). On the other hand, there is strongly held belief that early educators meet children where they are—that development is lived individually, requiring adaptation to a child's needs, interests, and abilities. The notion of the *child-centered curriculum,* so prevalent in mainstream early childhood discourse, holds that productive experiences for young children are linked to what particular children need at specific times (Lay-Dopyera & Dopyera, 1990; Schweinhart, 1988). These two themes are key aspects of the structural framework of *developmentally appropriate practice* (Bredekamp & Copple, 1997).

In this paper, we use the potentials and tensions of ideas about teaching and development as tools to help us understand practices related to kindergarten readiness. In an effort to understand the experience of the

gift of time (Ames, 1986; Ames & Chase, 1974), a strategy that provides additional time for maturation, we followed the experiences of children who delayed kindergarten entry, those who were relatively young but entered on time, and children retained in kindergarten. We found that the tension between developmental expectations and individual needs was key to understanding decision making, curriculum planning, and evaluation of students over the course of a year. This paper focuses on the following questions: *Just how elastic are our notions of development? How does a normative approach shape the possibilities for meeting the needs of individual children?*

Time and Development

Typical development and individual expression are the yin and yang of early childhood practice. They provide the broad scope and specific potential for response while recognizing that "average or norms never tell more than a small part of the story; far more informative is the range, that is, how individuals' levels of growth or performance are distributed" (Bredekamp & Copple, 1997). With this explanation of development, there is theoretical room for children who do not fit the typical expectations for growth. But what are the pedagogical responses for children who do not fit developmental expectation in practice?

The notion of readiness connects development to the requirements of a particular context. Used in relation to the start of formal schooling, it depicts the degree to which a child is capable of benefiting from the goals, expectations, and activities of a kindergarten program (Graue, 1993b; Meisels, 1999). When readiness is an issue for an individual child, two interventions are frequently suggested that are premised on allowing time for development. The first, *academic redshirting,* involves delaying entry to kindergarten so that a child will have more time to grow and develop. The second, *kindergarten retention,* is used for children who are already in the kindergarten context who are not making adequate progress. A second year in kindergarten provides more time for maturation and acquisition of skills.

It is estimated that about 7% of kindergartners are redshirted and about 5% are retained each year (Graue & DiPerna, 2000; Zill, Loomis, & West, 1997). Kindergartners who are redshirted tend to be boys and the youngest in a kindergarten age cohort. These children are often viewed as socially immature, and they come from affluent families (Graue & DiPerna, 2000; Graue, Kroeger, & Brown, 2000; Shepard, Graue, & Catto, 1989; Zill, Loomis, & West, 1997). In contrast, kindergarten children who are retained are typically boys of color, and they come from poor families and their families talk about early developmental delays (Byrd, Weitzman, & Auinger, 1997; Graue & DiPerna, 2000; Zill, Loomis, & West, 1997).

Although children who are redshirted have a slight, temporary academic advantage until third grade, children who are retained rarely close the gap with their grademates (Cameron & Wilson, 1990; Graue & DiPerna, 2000; Morrison, Griffith, & Alberts, 1997; Shepard & Smith, 1986). Rates of special education placement and parent-reported social and behavioral difficulties are higher than expected for children who are redshirted and children who are retained despite the proposed protective nature of the interventions (Byrd, Weitzman, & Auinger, 1997; Graue & DiPerna, 2000; Karweit & Wasik, 1994; May, Kundert, & Brent, 1995; Zill, Loomis, & West, 1997).

The literature on time-based interventions provides a window on the relations between developmental thought and educational practice. It gives a sense of the parameters of inclusion for children who are not developing as expected. In the rest of the paper, we present a project that examines this issue in a local context. We explore the elasticity of notions of development as young children make the transition into elementary school.

Research Methods

This study was designed to explore the experiences of children who are typically seen to have readiness risks. It focused on experiences of children who were eligible for kindergarten but who were spending an additional year in preschool (redshirts), children who entered school on time who were relatively young,

and children who were repeating kindergarten (retainees).

Children who were delaying kindergarten were solicited through letters to local day care centers, preschools, and pediatricians. Twenty parents volunteered for the study, and from this group, we selected five who were chosen to represent the typical gender breakdown (predominantly boys), a range of care settings (part-day nursery school, home day care, and full-time center-based care), and geographic location (a local range but within reasonable driving distance).

We identified each redshirt's intended kindergarten school and approached those schools for agemate and retainee participants, linking the sampling of the three groups in recognition of the community orientations to readiness (Graue, 1993a). We were able to get good matches for four of five agemates (same sex and birth quartile). In the fifth case, the teachers who were willing to work with us had few boys who had summer birthdays so we chose a child from the spring quartile. Retention is a very low incidence strategy in the school districts, and we were able to locate only three retainees for the project across four elementary schools.

The redshirts were white and middle class, while the retainees were more on the border of working class and middle class. These characteristics are in line with folk wisdom and research that redshirting is a practice of the relatively affluent (Shepard, 1991; Shepard, Graue, & Catto, 1989; Zill, Loomis, & West, 1997). The participants are described in Table 1. All names are pseudonyms. Within the sample of 14 children, we worked in 8 distinct schools/centers, across 2 school districts, in public and parochial elementary schools, and family day care, part-time nursery school, and full-time day care.

Table 1
Project Participants

Redshirt	Agemate	Retainee
Susan White female, 9/1/94 Home day care Jenny—Home day care provider Joe—Computers	Cindy White female, 7/27/94 St. Thomas Elementary—Jane Babbs Rene—Pediatrician Bob—Lawyer	Paula White female, 5/6/93 Frank Elementary (1st K attendance at St. Thomas) Lacy Newberry Lilly—Unemployed printer Ken—Dental repair technician
Jacob White male, 7/1/94 Oliver Heights Nursery School Andrea—Stay home mom (library science) Carl—University professor/scientist	Richard White male, 7/15/94 Oliver Heights Elementary—Valerie S Miriam—Stay home mom (computer design) Joe—University researcher	
Ford White male, 8/21/94 Oliver Heights Nursery School—Sarah Overton Amy—Teacher Paul—Videotape operator sports	Larry White male, 8/25/94 Elm Grove Elementary—Wendy Connor Jane—Part-time accounting Jason—Self-employed sales, advertising	Rusty White male, 8/25/93 Elm Grove Elementary—Amy Smith Linda—Interior design Pat—Farming (?)
Mick White male, 8/6/94 Oliver Heights Nursery School—Rhonda Paula—Dentist Rod—Vice-president, sales, marketing	Andy White male, 7/16/94 Elm Grove Elementary—Stephanie Walker Daria—Public relations, marketing Martin—Sales	Sean White male, 2/22/93 Elm Grove Elementary—Wendy Connor Leah Burchill—Lab technician
Nate White male, 8/22/94 University Day Care—Angel, Faye	Malcolm Biracial male, 4/8/94 Larkspur Elementary—Sena, Lucy	

Linda—Librarian Howard—Educational software producer	Mena—Administrative assistant	
	Alan White male, 3/25/94 Larkspur Elementary—Sarai, Salli Lena—Stay home mom (nursing/library science) John—Physician	

For each child, we interviewed parents, teachers, school administrators, and children, focusing on general beliefs and practices related to kindergarten readiness and discussions about particular children's experiences. These interviews lasted from 25 to 50 minutes and were taped and transcribed. Research assistants observed in each educational setting across the span of the academic year (with an average of 8 observations per child), focusing on the focal child, his or her interactions, and the nature of the educational activities. These field notes were shared with educators on a regular basis as a form of member check.

This paper relies primarily on the interview data and is supported by traditional strategies of qualitative inquiry (Emerson, Fretz, & Shaw, 1995). Codes were generated inferentially and deductively, applying theoretical notions to the data and constructing themes from within the data (Graue & Walsh, 1998). We then worked to validate these themes by looking for supporting and disconfirming evidence. We developed memos (Graue & Walsh, 1998) to illustrate conceptual themes and compared these themes with the field note and interview evidence. Triangulation of interpretations was used across researchers and data sources. We organized a narrative that represents the parenting and teaching practice in which the participating children lived their lives. We present those themes in the next section.

The Kindergarten Prototype

> At that point, she was looking like a child who was much more ready to begin kindergarten, so we really feel that this was the good step to take for Paula. She's matured more this year. Her size is appropriate for a kindergartner right now. She's much more comfortable with the classroom right now. Last year, her first year of kindergarten, she was much more silly and immature for her classroom. She's definitely grown in this area. I would say she was much more a *true kindergartner* this year repeating kindergarten than she looked last year. (Kathleen Osborne, Paula's speech teacher, RK[1])

Discussions and teaching practices in both the preschool and kindergarten settings were organized around a notion of a *kindergarten prototype.* This image of the typical kindergartner oriented decision making in ways that could be interpreted as very developmental. It is keyed to conceptions of the typical development of 5-year-olds and is multidimensional in its framing. The kindergarten prototype was organized by perceived attributes of kindergarten children and assumptions about how programming and parenting should meet child need. It was shaped by the normative practices of institutions, which enacted the expectations of "kindergarten-ness." We take a close look at the kindergarten prototype, elaborating the model suggested by Paula's speech teacher and extending its description across children and contexts.

Age

> Knowledge of typical development of children within the age span served by the program provides a general framework to guide how teachers prepare the learning environment and plan realistic curriculum goals and objectives and appropriate experiences. (Bredekamp & Copple, 1997)

Given our focus on age-related interventions, the pervasiveness of age in discussions of the kindergarten prototype should come as little surprise. The model of a prototypical kindergartner favored the older kindergartner and was suspicious about the potential of younger kindergartners. Rick Webster, the principal at Richard's elementary school, asserted that teachers could pick out those young ones, even without birthdate information:

> [K]indergarten teachers here routinely tell me that they can identify, without data, who the summer birthdays are, and they recognize that those children frequently are behind the other kids for most of the kindergarten year. They may catch up in later years. Even second- or third-grade teachers will sometimes tell me that they can identify who the summer birthdays are or the early entrants. Talk about a subject that most teachers are not wild about! (Rick Webster, principal, Oliver Heights Elementary, Richard's school, AM)

We might expect early educators to have knowledge of age characteristics. What was interesting to us was the negative spin put on youngness. The label of "young" was *not* a compliment. It foretold a lifetime of problems. Mr. Webster articulated the age-based model:

> The children are just simply less mature than their classmates. In some cases, a child will even look a little less mature or smaller or younger. But, most of the time, they are talking about behaviors that give a child away. Silliness when the other children are more serious, length of attention span.... There are times when teachers have a feeling or I have a feeling that the reason a child isn't stepping up to the next level of understanding of an area is that they simply don't have the maturity to understand the more sophisticated concepts and to get into more abstract kinds of things. (Rick Webster, principal Oliver Heights Elementary, AM)

Here, younger means less acceptable. There is a threshold for acceptable behavior that includes physical and social maturity, focus, and cognitive structures that allow learning. A younger child is not likely to have all of these attributes, and teachers can see it. Acceptance of developmental variability is limited, with youngness a deficit that is hard to overcome.

Although treated as an absolute, age has an inherent relativity to it—youngness takes on a meaning in its comparison to older, more mature classmates. Wendy Connor, Larry's teacher, framed age as a competitive disadvantage:

> It's hard for him, because he's competing against kids who have turned 6 already. And that's hard, because they just have that little bit more under their belt of controlling their body, controlling themselves. The coordination, things like learning how to tie your shoes, well it's a whole lot easier if you've had that kind of stuff. (Wendy Connor, Larry's kindergarten teacher, fall, AM)

The relative effects of age were paired with a developmental conception of emotional growth in which children were seen as "getting stuck." They were unable to move beyond an immature level because they were in a context with children who were much more sophisticated and working at a higher level:

> Throughout the course of the year, we will sometimes see what I refer to as "meltdowns" on the emotional level. They go along beautifully academically and all of a sudden they hit a glitch emotionally, and it's like a huge stumbling block for the kids. And you never quite know when it's going to happen. It's like they have reached a plateau, and they just can't get beyond it at this point. Because agewise, there might be a full two-year spread in that class: someone who started later and someone who's got the earlier admission. (Maria O'Neil, principal, St. Thomas Elementary, AM, RK)

Age had both individual and social dimensions. It was a physical and maturational threshold, and it was relational because its meaning was made in part by their local comparison group.

The concept of a kindergartner could be so strongly held that stories were constructed to explain divergence. Paula, a retainee, had been adopted from Russia at 22 months. Everyone believed that the birth certificate must be wrong because Paula did not seem like a kindergartner the first time around. At the beginning of this section, we shared her speech teacher's notion of a true kindergartner. Her mother concurred, voicing serious doubt about the validity of the birth certificate provided in the international adoption:

> I have to wonder in the back of my mind, if she is truly 6 years old.... They told us what her birthday was, but, you know, throughout the whole process, they could have revised dates or anything if they wanted her to get out of the country and have a better life. And what if they moved her age up by six months? Who would know? Not to say that it is true, but right now she is the average height and weight of a kindergartner.... Not to say that kids can't be smaller than one another, but even emotionally and mentality wise—the whole works. It's like—maybe she's now only 5. (Lilly Katz, Paula's mother, RK)

The age-based expectations in the kindergarten prototype were so compelling that difference was explained through invalid documentation.[2] Behaviors and size could not be wrong, but papers could be.

Parents, teachers, and administrators held conceptions of the prototypical kindergartner that were built on typical age expectations. What was typical became the norm and defined deviance. Although all the children met the legal requirements for kindergarten entrance, the normative notions of the prototypical kindergartner made youngness a hazard. Although this view of the youngest is typical,[3] it seems curious that teachers of young children would have such a coherent negative image of their youngest students. It may be in part because of other aspects of the kindergarten prototype.

Stamina

> [whispers] Mom really wants him to take this nap. [Normal tone] I have said to myself, mom and dad have to realize that there are 16 other kids and that I can't make him nap. I've tried telling him, "This is the place that you need to go, you need to lay here. Mom and dad have talked to you about resting quietly. They want you to sleep." They want me to put him in a corner with no books away from everybody. But he's the *chattiest, most disruptive one of the bunch*! [Laughter] He falls apart when he gets home because he's tired. And, you know, I think that is some of the age. He's just turned 5; he was taking 3-hour naps at home. So that transition of, you're growing, your body is still developing, and now you're stretching it in all these different areas. (Wendy Connor, Larry's kindergarten teacher, AM)

Needing a personal break involving sleep was a physical indicator of immaturity. Five-year-olds should be in the transitional period in which they no longer needed naps. This expectation took on special salience with a recent move to full-day kindergarten programming. Several of the parents of redshirted children linked their decision to delay entry to their fears about their child's ability to handle the rigors of a full day of school:

> His grade school only has full-day kindergarten. And that was a big factor too. He still naps during the day. I cannot imagine him in kindergarten *everyday, full day*. 'Cause he's never had structure like that, and he is very much a homebody.... I just couldn't see him being younger, I wasn't sure if he could handle it. (Amy Sanderson, Ford's mother, RS)

Napping was an indicator of youngness. It was one of those physical, biological indicators that immutably implied developmental level. Needing a nap meant needing to be home.

In almost all cases, the need for a nap was a behavioral characteristic with a physical interpretation—being tired was a physical manifestation of youngness and therefore an indicator of risk. It was connected to a sense of social competence because children who were overtired often overreacted to classroom or home situations. It was correlated with a global notion of maturity in important ways that will be highlighted in

the next section.

Maturity

> Most of the young students that come in the early 5s, they tend to cry easily, they are frustrated easily, somebody says something to them they are not as able to take any kind of comments. They tattle a lot, they want attention, they want comfort from the teacher. (Jane Babbs, Cindy's teacher, St. Thomas Elementary, AM, RK)

Prototypical kindergartners had a social maturity that facilitated interaction. They could fend for themselves without relying on adults and were easy to get along with. Parents and educators were unanimous in pairing maturity with easy-going traits that helped them be a member of the group. They were independent but social—flexible leaders who knew how to engage their peers.

When Cindy's mother was thinking about her daughter's entry to school, she focused primarily on the social aspect of her daughter's development, on confidence and flexibility rather than on particular academic skills:

> I think social readiness is really the biggest key, rather than the academic skills, whether she can count or not, or know her alphabet wasn't really going to change my mind as to whether she was ready to go. But if she had the social skills to go to school, meet friends, be comfortable, handle a new situation, and not get so stressed out, I felt like she could succeed. If she had not been emotionally mature enough to handle a social situation, I would have thought about holding her back. (Rene Johnson, Cindy's mother, fall, AM)

Immaturity was often a catchall phrase for quirks that manifested themselves in unusual behaviors. Jacob, a redshirt, was known as a "hand licker." His teacher Sarah portrayed his orality developmentally, an indicator of youngness:

> He is really oral. Young kids seem to be really oral. Like today—I don't know if it was after snack, or what, he just started licking his hands instead of going to wash them off. And I saw that, and I said, "Jake, since you are done with snack, you need to go and wash your hands." (Sarah, Jacob's teacher, Oliver Heights Nursery School, RS)

An unusual behavior was normalized within the kindergarten prototype, moved from an idiosyncrasy to a step along the developmental path that indicated where a student was relative to a typically developing child.

Despite early childhood educators' advocacy of mixed-age groupings (Katz, Evangelou, & Hartman, 1990), interacting across age lines holds quite normative interpretations. Teachers and parents used child choice of playmate as an indicator of "true" developmental level, something that could help gauge social maturity. Playing with younger children was taken up as a risk marker, interacting with older children an indicator of social strength. Nate's teacher justified the redshirting decision by the company Nate kept, and Andy's mother felt that his choice of friends showed his social maturity:

> [L]ast year, I would say that he hung out with the kids that were not going off to kindergarten as much as he hung out with the kids that he is friends with now. And that was a good telltale sign, say, he was with kids that were not quite his age. That was a good sign to say he probably was not ready for kindergarten. (Angel, Nate's teacher, RS)

> He tends to play with the kids that are almost a year older. I think of his three or four best buds, they are almost a year older, and that is whom he seems to gravitate to. Two of them are in his class, and they are almost but not quite a full year probably 9 months older. (Daria Bowers, Andy's mother, AM)

Maturity was a multidimensional characteristic, located primarily in the social realm. It portrayed someone confident, interactive, independent, and age appropriate.

Work Habits

> He has a better work ethic I think than a lot of the other kids. He likes to do a job, and he pretty much likes to do a job well if he is going to do it. He is not one to really rush through something to get it done. I really feel like that he takes pride in what he is doing. And he accepts it for what it is and wants to do a good job with it, and I think that is a strength that he has that some of the others don't. He is pretty able to tune out distractions too and not go along with it and maybe that is because he is kind of task oriented. (Sarai Welstone, Alan's kindergarten teacher, AM)

The final aspect of the prototypical kindergartner could be seen as the intersection of child characteristics and institutional practice—it relates to the work habits that characterize a good student. Pairing ideas about what a typical kindergartner can do and the needs of classrooms and teachers, both parents and educators depicted a child who was independent but compliant. This child was adaptable to the many transitions in a kindergarten program and capable of making good choices.

More importantly, educators evaluated children's activity choices in relation to the kindergarten prototype. Teachers expected typically developing children to choose a variety of activities over the course of the school year. Those who self-limited their activities probably had some kind of developmental deficit. Rhonda, a teacher at Oliver Heights Nursery School, used Mick's choices of blocks and dinosaurs as validation of his parents' decision to delay kindergarten entry:

> What I saw about Mick last year was a very happy child. He spent almost his whole year playing in the blocks with the animals. He loves dinosaurs. And so the dinosaurs and the blocks were his security. It wasn't until the end of March that he started branching out in the room a little bit....You know, he didn't blossom a lot, but he would get up and do a lot of observing. But you need to know that by that time the rest of the children were really on a roll. They were secure in going and doing a lot of other big-time playing. And he had missed that part. He was very open to having other kids come in and play with him. He really liked it. But the thing that I thought was interesting was that he did the *same play over and over*. You know, that was his security, with the blocks and the dinosaurs. (Rhonda, Mick's teacher, RS)

Rather than seeing strong preferences for one type of activity as an expression of strength or specialization (in fact, some use focused interest as an indicator of giftedness), it was interpreted as a weakness. It was perseveration—either developmentally immature or potentially deviant. Teachers prided themselves on luring children into new activities, of helping children expand their horizons. But these choices were clearly directed by the teachers. There was a strong bias against boys who chose the blocks and worries about boys not choosing the art area. Given that all the teachers were white, middle-class women, it is hard not to put a gendered spin on this evaluation.

In many ways, a focus on independence was related to teacher concern about rigors of the next-grade curriculum. The preschool teachers framed their practice as readying their children for the big, less-kind kindergarten, while the kindergarten teachers oriented their students to a much more structured first grade designed for more independent learners. This year's child was read through next year's interpretations:

> When he's expected to function on his own, and sit and do work without distracting a lot of other kids, that's gonna be a real challenge for him. It's gonna be really hard I think for him—they get into the guided reading groups, so there's gonna be a lot of situations where the expectation is that you need to handle yourself. And you need to sit and concentrate for longer periods of time, and that I think is gonna be hard for him. (Wendy Connor, Larry's kindergarten teacher, AM)

A theme that we found threaded through both the maturity and work habit discussions is that prototypical kindergartners do not need the teacher. They get along with others; they solve their own problems; they do their work. The gold standard is someone for whom the teacher is pretty irrelevant. In fact, one teacher described her group in the second semester of the year as distancing themselves from her:

> Well, they're much more independent workers. They're much more self-sufficient. We can accomplish a lot more during the course of a day.... They do things without me having to tell them to do them. You know, they know the routine.... So, yeah, they've come a long way. (Lacy Newberry, Paula's teacher, RK)

As we listened to these teachers, we wondered if children are being pushed away from their teachers by these expectations of independence. Are teachers losing the role of social facilitators as they work with children who have had more preschool experience or who are older and less needy? Being independent and having the ability to make good choices is an important developmental milestone, but it is variable across children and something that is teachable by skilled professionals.

Discussion

In this paper, we worked to understand how children experience our notions about development, particularly as they relate to the practice of the gift of time. Specifically, we explored how children who shared general readiness risks were differently interpreted and inducted into schooling. Through our work with redshirts, agemates, and retainees, we saw how profoundly notions of typical development shaped philosophies and pedagogy.

Virtually all the early childhood settings in which we worked were known locally as high-quality, developmentally oriented contexts. Working to understand how children were classified as ready or not, we found that these parents, teachers, and administrators had strongly held notions of appropriate behavior, skills, size, and dispositions. Guided by a normative conception of the typical kindergartner, they formed standards against which children were judged. Simultaneously, all teachers had a coherent sense of programming appropriate for a particular child—the prototypical kindergartner. Pursuing programming for the typical, they lost sight of the rich variability of children who are kindergarten age. Children who were small, socially immature, focused on one activity, or who needed a nap did not fit this image of a kindergartner, and the response was limited to the "gift of time." This pseudo-adaptation to a different developmental timetable amounted to shifting the age cohort in which the children lived their educational lives.

We found in these contexts a concrete embodiment of the concerns noted in the most recent guidelines for developmentally appropriate practice:

> Likewise, educational institutions continue to be structured in ways that give insufficient recognition to or adaptation for individual differences. There is a fundamental disconnect between knowing that children are different and expecting them all to learn in the same way at the same time. (Bredekamp & Copple, 1997, p. 39)

Even after 25 years of attention and discussion, the local implementation of developmental programming is still highly normative, with attention to typical development the primary concern and the evaluation of individuals relative to that standard second. As a result, children are shut out and made less of than their older, larger, more cooperative peers.

We think it might be helpful to highlight within developmental approaches something that was always there but that can be lost in the shuffle—*developmentally responsive practice*—by building on what we know about child development and articulating the responsive act of teaching in concrete ways. When we think about working in developmentally responsive ways, it may just be that the gift of time is too generic to support the development of individual or groups of children. Motivated by a notion of a kindergarten prototype, the gift of time does not address specific needs or promote agency in teachers. We advocate

more responsive approaches built on strong teacher knowledge and action for specific children. If children are not ready for our programming, it speaks more about our inability to be inclusive and respond to their needs than to their particular skills and development.

Notes

1. We indicate a student's extra year status with the following initials: RS—redshirt, RK—retained kindergarten, AM—agemate.

2. We are aware that documents are not the final truth. What we find interesting about this case is that no one provided any evidence that the birth certificates were wrong beyond the body of Paula herself. She didn't fit the image of a 5-year-old; therefore, she couldn't be 5.

3. Gredler notes that teachers across the world complain about the youngest children in their group, regardless of the entry age (Gredler, 1992).

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Author Information

M. Elizabeth Graue is professor of early childhood education in the Department of Curriculum and Instruction at the

University of Wisconsin-Madison. She received her B.S. in early childhood education at the University of Illinois at Urbana-Champaign, her M.Ed. in policy and evaluation research at the University of Illinois at Chicago, and her Ph.D. in research methodologies at the University of Colorado-Boulder. She has worked as an early childhood special education teacher and a kindergarten teacher. Her research focuses on kindergarten policy, readiness, and home-school relations. Dr. Graue has served on the editorial board of the *Early Childhood Research Quarterly* and is the chair elect of the Early Childhood/Child Development Special Interest Group of AERA.

M. Elizabeth Graue
University of Wisconsin-Madison
Department of Curriculum & Instruction
225 N. Mills
Madison, WI 53706
Telephone: 608-263-4674
Fax: 608-263-9992
Email: graue@education.wisc.edu

Janice Kroeger is an assistant professor at Kent State University. She received her B.A. and M.A. from Eastern Illinois University and taught in early childhood compensatory programs, a lab school, and community college. Kroeger completed her Ph.D. in early childhood at University of Wisconsin-Madison, studying the partnership practices in a diverse primary school. Her research focuses on identity, parent and teacher interactions, curriculum development for young children, and community action for social change. Recently, she has contributed to the professional development of Head Start teachers in family-school partnerships.

Christopher Brown is a former preschool and elementary school teacher. He received his B.A. in philosophy at the University of the South and his M.A. in curriculum and instruction from New Mexico State University. Currently, he is a Ph.D. candidate in curriculum and instruction at the University of Wisconsin-Madison and a fellow in the Wisconsin Doctoral Research Program. His research interests include standards-based accountability, public policy, curriculum, and student identity.

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Instant Video Revisiting for Reflection: Extending the Learning of Children and Teachers

Seong B. Hong
University of Michigan at Dearborn

Jane T. Broderick
East Tennessee State University

Abstract

This article discusses how instant video revisiting (IVR) promotes reflective thinking for both teachers and children. IVR was used as a daily classroom experience with both the children and the teachers throughout one semester in two preschool classrooms with children 2.5 to 5 years old. The teachers used a digital video camera to generate data to help them understand the behavior of the children and revisit the children's actions immediately, with the children using the video clips to extend their learning. Two classroom examples illustrate how IVR supports the children's learning and the teacher's reflection of this learning. The first example describes how IVR helped the children reflect on their actions and solve their own conflicts. The second example describes the use of IVR to scaffold the children's idea of the middle of a story, thereby strengthening their own thought processes in relation to a story construction.

Overview

In our preschool classrooms of 2.5- through 5-year-old children, the video camera is one of the most significant tools that we use to generate data to understand the children and to develop an emergent curriculum. The children are comfortable with the video cameras because teachers use them daily, often interacting with the children while the camera is recording. Instant video revisiting (IVR) is a technique in which the children view videotaped observations of their learning experiences. IVR (Forman, 1999) is also a daily classroom experience with both the children and the teachers. The advantage of IVR is that it provides the continuity for deepening a child's understanding of that experience. In this manner, the video frames serve as "learning tools" for the children's construction of knowledge and the teacher's reflection of this learning. In this paper, we will illustrate how IVR increases reflective thinking for both teachers and children.

The two episodes we discuss reveal: (1) how IVR turned a teacher into an observer and helped her discover the children's true intentions during a social conflict while also providing the children the opportunity to discuss the situation with themselves and others, and (2) how IVR allowed one child to contrast a sequence of video frames with the sequence of drawn symbols to determine whether his story had a beginning, a middle, and an end—the criteria necessary for analyzing whether his play was complete. In the first example, the revisiting discourse helped children solve their problems while also

creating empathy for one another. The story analysis provided by IVR in the second example promoted the development of high-level thinking skills on the part of the child who was forming whole-to-part relationships, locating the parts of the story relative to their placement (beginning, middle, end), and making decisions about their placement according to the meaning he had attached to his choices. This process encouraged him to metacognitively reflect upon his own thinking, that is, the meaning of his symbols and their purpose in story structure (Forman & Fyfe, 1998).

The Purpose of Revisiting and Instant Video Revisiting

The innovative educators of Reggio Emilia, Italy, have introduced the concept of documentation and revisiting. Documentation is both a process and product that seeks to represent children's learning. Documentation provides a way for children to revisit their experiences and extend their thinking. Teachers revisit documentation to better understand children's thinking and to inform their teaching practice. They revisit the children's work to see what just occurred, to listen again, and to gain further understanding. Revisiting is not merely asking children to remember what happened in a learning situation or event. Rather, the intent of revisiting is to recall past experiences as a platform for further exploration of new ideas with the children (Rinaldi, 1998; Forman & Fyfe, 1998).

Revisiting is a tool for connecting prior experience to further learning. For example, a child sees a videotape of a disagreement where she grabs a toy from her friend and walks to another area of the classroom to play with it. While viewing the videotape, she says, "He isn't happy when I take the truck." She reveals that she is able to use the viewing experience to communicate that she now sees something she did not know before—that her friend was upset when she took the toy. Revisiting also provides both teachers and children with reflections on their objectives of teaching and learning and promotes continuity across a given activity (Hong, 1998). Thus, revisiting generates new hypotheses and ideas for extending learning, making connections, and constructing new understandings.

Many media serve as tools for revisiting. These include children's work (drawing, writing, sculpture, etc.), written documentation, photographs, video clips, and instant video segments. As we have become more proficient at using video clips to revisit, we find situations where IVR is more effective for scaffolding learning. IVR is a three-step process: (1) using an 8mm foldout screen camera to videotape children's play, (2) revisiting of the video segments by the teacher, and (3) revisiting of video segments with children and teacher within a period of minutes or hours. Through IVR, we are able to concretely reflect actions back to the child in a sequence of "video frames," or segments that can be frozen in time, of procedural stages that would be too complex for us to communicate in a dialogue. We will present two IVR examples from early childhood classrooms, one in the area of social-emotional relations and the other in the area of story construction.

Extended Use of IVR

Forman (1999) coined the term instant video revisiting and explored the educational value of IVR. According to Forman, IVR happens immediately in the context of the learning experience that it displays on the viewing screen. In one of our examples, the revisiting is immediate, and in another, the revisiting occurs an hour after the videotaped episode.

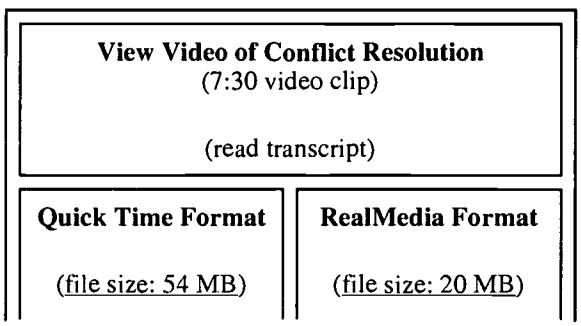
Our purpose is to illustrate how instant revisiting increases reflective thinking, helping children and teachers to step outside their experience to deepen their understanding and move into a new perspective.

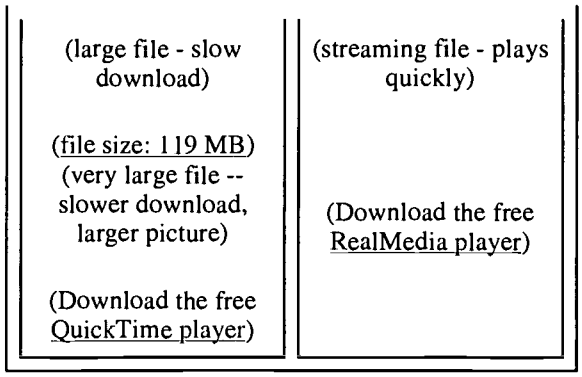
Forman's (1999) introduction to IVR is a series of short vignettes that suggest the many possibilities for use of IVR in the classroom. In our teacher training classrooms, we use technology such as the digital and nondigital video camera with the viewing screen as an essential tool for visualizing and reflecting on children's and teachers' thinking. Therefore, we chose to research the benefits of using IVR throughout the semester in our classrooms. Our examples reflect semester-long use of IVR within the context of spontaneous social conflicts and emergent curriculum centering on story construction.

Visualization and Reflection on Children's Social Conflicts through IVR

Learning social skills is a major developmental task for any child, and social guidance techniques are essential skills for early childhood teachers. Because young children are just learning how to build relationships with others, sometimes their inappropriate social behavior can be misinterpreted. Young children do not have words to express their feelings and needs. They do not connect actions to consequences. Young children are impulsive and self-centered, and they may not recognize others' feelings. They may use any means at their disposal to get what they want and to be understood (Kaiser & Rasminsky, 1999). Most teachers are unprepared for guiding or preventing these types of behavior and consider them as challenging behaviors. The child who exhibits challenging behavior provides plenty of clues for the teacher to see his point of view throughout the day, but the busy teacher often misses the true structure of the child's social experience. We thought IVR could provide the teacher with an outlet to discover what the child's true intent is during a conflict. Most conflicts have an underlying reason that if understood by teacher and child could be considered something other than inappropriate actions of the child(ren). In fact, IVR is able to turn the teacher into an active observer, using reflection to learn the child's hidden agenda during a social conflict.

We began by taping social conflicts and did instant revisiting with the children involved. By using the digital video camera as a VCR playback instrument, the children were able to see their actions in the viewing screen and immediately revisit their experience. Teachers were able to reflect the children's actions back to the children in a sequence of video frames. This IVR technique allowed each child to observe the other child's emotions, to see the reactions to each child's behavior, to reflect on each child's behavior, and to discuss solutions to the problem. The teacher reviewed the videotape immediately to choose the specific segments based on careful reflection that led to the development of meaningful questions. For example, when the teacher reviewed the videotape of Mike taking a book away from Raid, the teacher noticed that Mike tried different strategies, including hurting Raid, to see if he could have the book. Mike was not aware of the consequences of his actions, so the teacher's questions were developed to make Mike reflect on his actions. The teacher was able to plan a level of questioning that guided Mike's reflection of his actions. During the revisiting, the teacher asked him, "I want you to think, how do you think Raid felt when you took the book away from him? If you wanted that book, what could you say to Raid? Do you think that Raid wanted that book? What if both of you wanted to look at the book? What could you do?" Without reviewing the videotape of the children's social conflict, the teacher's intervention questions might not lead to a specific goal. For example, if the same teacher said, "don't grab things from other people," instead of asking questions making Mike reflect on his behavior, then this intervention would have failed to effectively communicate why his actions were wrong, only that his behavior was wrong. Thus, revisiting is essential in teaching children about positive social behavior. The use of IVR can promote better visualization and reflection on the situation, resulting in positive growth for both the children and the teachers. When the teacher watched the videotape to revisit with the children, she began to see things that she had not noticed before and was, thus, able to take the perspectives of each of the children involved in the conflict. The following reflection from the teacher describes the point: "The children are able to handle many conflict situations on their own. Too often, teachers will step into the situation and resolve it for the children. How then are they [the children] to learn or practice problem-solving skills? I found out that as long as they were not physically hurting one another, they often arrived at a situation that was satisfying." First we will describe the social conflict before reviewing the IVR process and what we learned.





The Social Conflict and the Teacher's Reflection

The following dialogue describes one example of how utilizing a digital video camera for instant revisiting assisted in the children's and teacher's understandings of social conflict. One preschool teacher was having a difficult time handling several challenging behaviors among some children in her preschool classroom. This dialogue begins with a conflict situation where Mike (3.5 years old) and Katie (4.5 years old) were playing with magnets and Mike wanted the same magnet wand that Katie wanted. It started when Mike began helping Katie collect magnets from the floor. Katie made a circle with the magnets:

> Katie: Wow! Look at this! I'm putting it into a big circle (Mike watches).
> Mike: "Ok. You need two more (Mike looks for more on the floor).
> Katie reaches for the purple magnet wand, and Mike decides he wants the same magnet wand that is in Katie's hand. The two hold onto the magnet wand and try to pull it away from one another.
> Mike: I want this one.
> Katie: I want this one.
> Katie: Give it back!
> Mike: I want it!
> Katie: Give it back!
> Mike: It's my favorite color!
> Katie: Give it back! I had it!
> After a few struggles, the teacher intervenes.
> Teacher: Katie, what could you do?
> Katie (to Mike): Stop it.
> Teacher: Mike, do you hear Katie's words?
> Mike lets go and begins to cry.
> Mike: I want it.
> Katie goes over back to the magnets and proceeds to play with them. Mike continues to cry.
> Mike: I want that one. It's my favorite color.
> Katie ignores Mike. Mike stops crying, goes over to the magnet wands, and takes the rest of the wands in the basket. He says, "I am going to take all these ones away."
> Katie (to Mike): Do you have mine?
> Mike: No.
> Katie: Where's mine?
> Katie looks under the table. She then looks on top of the table and finds her wand.
> Mike finds some on the floor and says: "Hey, how about these ones?" He puts them in the basket. Then he puts them on the table closer to Katie.

When the teacher reviewed the conflict videotape, she interpreted the situation as follows: "When Katie made the circle, she no longer needed Mike in her play. Mike still wanted to be a part of her play. He didn't know how to invite himself back into her play. He wanted to play with her. His way of showing it was to try and take the same wand she was using. Once Katie got her wand back, she was satisfied. She

didn't take into consideration Mike's feelings or how she could include him in her play again."

When the teacher watched the videotape, she became an observer rather than a participant. The teacher gained a new perspective of what she had previously considered as challenging behaviors. The teacher was able to reflect on both sides of the conflict and see how Katie did not pay attention to Mike's sadness during the conflict situation and how, for Mike, his true intention was to be included in Katie's play. The teacher said, "Now, when Mike does something inappropriate, I view the situation with different eyes. I no longer look at him as a disruptive child, but as one who wants to learn how to have friendship with peers." Knowing the true intent of the children made the teacher feel less frustrated when having to handle various social conflicts. Once the teacher had reflected on the videotape, she chose the frames to revisit with the children and formulated questions. As a consequence, the teacher's questions were more thoughtful, reflective, and were linked together to effectively scaffold the children's thinking. In the following revisiting, the teacher's questions focused on helping Katie to see Mike's intention, to provoke empathetic feelings from Katie, and to provide the opportunity for both of them to discuss their feelings. The following IVR example is one of many episodes used during the semester.

Instant Video Revisiting

An hour later, we revisited the morning conflict using the specific segments of the conflict tape through the foldout screen (see Figure 1). The following is the transcript of the event:

Teacher: What's happening?
Katie: We're fighting.
Teacher: What were you fighting about?
Katie: I wanted that purple magnet.
Teacher: Mike, what do you see?
Mike watches the situation but gives no verbal response.
The tape is rewound again.
Teacher (to Mike): How does Katie feel? (referring to when Mike is trying to take the magnet wand away).
Katie: I feel mad.
Teacher: What did you want, Mike?
Mike: I wanted that (purple magnet wand).
Teacher: You wanted that?
Mike: Uh huh. Because it's my favorite color.
Teacher: You wanted that?
Teacher (to Katie): How's Mike feeling right there, Katie (referring to Mike crying after he let go of the magnet wand)? The teacher is trying to point out Mike's feelings to Katie. She did not pay attention to his sadness during the conflict situation.
Katie: He's feeling sad.
Teacher: What could you do to make him feel better?
Katie: He could pick another one. That would make him happy.
Teacher: Well, is he picking another one?
Katie: No.
Teacher: What could you do to make him feel better?
Katie: Maybe next time I could tell him to remember to share.
Teacher: What if you gave him another one of those magnets?
No response from Katie.
Teacher: Yeah. But did you see how sad he was?
Katie: Yes.
Teacher: What I saw happening is when he was so sad, you just went over and started playing again.
No verbal response from Katie.

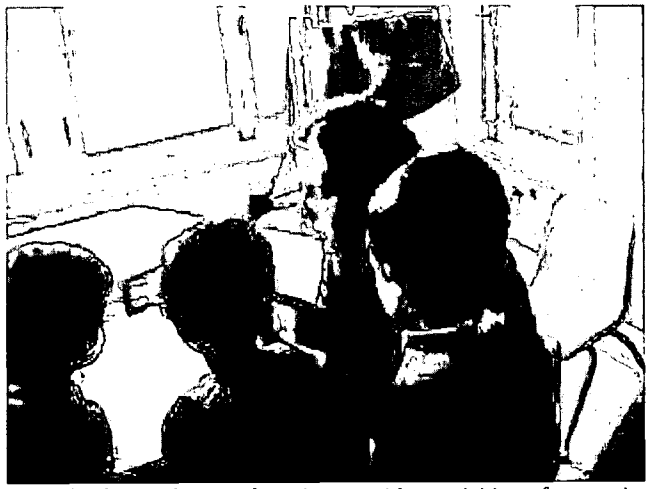


Figure 1. The teacher conducts instant video revisiting of a morning social conflict with the children using the foldout screen of a video camera.

Katie and Mike Discuss Their Conflict

Through this next step of the IVR process, the teacher realized that children were able to handle many conflict situations on their own. Too often, teachers will step into the situation and resolve it for the children, which does not help the children learn or practice resolution skills.

Katie: Do you know why I just took it from him?
Teacher: Why?
Katie: I just wanted him to listen that when friends are playing with something you have to get another one instead of taking from friends.
Teacher: Did you hear what Katie just said?
Mike: No.
Teacher: Katie, look at Mike and tell him again. Mike, look at Katie.
Katie: Mike, next time I want you to listen to how I feel when you take something from me. Next time when some friends are playing with something, you got to learn and when someone feels sad you got to say you're sorry.
Teacher: But what did you want Mike to do when he took the magnet wand from you?
Katie: I just want to...(looks to teacher). I'm not done finish talking to him.
Teacher: Go ahead.
Katie (looks at Mike): Mike, next time when you see a friend playing with something, you got to remember to stick it your head. Next time when someone is having something, go get another thing.
Mike: But you know.
Katie: No buts!
Teacher: Let him tell you what he's thinking.
Mike: But you know, Katie, when you got one, you give me one, ok.
The tape was rewound so the children could tell one more time what they saw.
Teacher: Katie, I was wondering in the beginning what would have happened when Mike was trying to take that purple one if you would have given him another one right then. What do you think would have happened?
Katie: Maybe he would have been happy.
Teacher: When Katie was making that circle, did you really want to play with her?
Mike: Uh huh.
Teacher: How could you help Mike play with you with the circle? If he really wanted to play with you?
Katie: You could build a big house.
Teacher: He really liked it. Did you like what Katie made?
Mike: Yes.

This IVR in conjunction with the video replay and the teacher's questions were crucial in resolving the situation. The children needed to see, through the video replay of IVR, the situation several times to process the conflict in order to understand the meaning of the actions behind their conflict. This IVR provided the children the opportunity to discuss their feelings and learn the feelings of others, which helped the children create empathy for one another. This reflection was possible because they were reframing their behavior and discussing the thoughts behind their actions. As the teacher rewinds the tape several times, she encourages the children to stop at specific instances to visualize their intentions and the consequences of their actions through IVR.

Developing Strategies for Guidance

IVR of videotaped social conflicts helped the teacher visualize and reflect upon the children's development and her teaching. It led her to plan a strategy for guiding the children toward positive social interactions. Her focus shifted from the children's negative behavior toward the positive. She looked for the challenging child's positive relationship with another specific child, which made her question why the challenging child respects a specific child but not the rest of the children. This question led her to videotape his positive relationship to find positive patterns in his social skills. She thought that by using IVR of these positive interactions the child would be able to apply his friendly relationship with one child to his relationship with the rest of the children in the classroom. The teacher hoped that the challenging child would develop an awareness of his actions and how other children react to them. This kind of IVR occurred throughout the semester with all the children in the classroom and helped the teachers scaffold the children's ongoing learning. The next example shows an instance where IVR was used immediately after the videotaping within the context of the story construction process.

IVR and Story Construction

Learning about story development requires an understanding that stories have beginnings, middles, and ends. The middle is particularly complex for the pre-operational child to conceptualize. Young children need to experience and explore these concepts in multiple ways (Fields & Spangler, 2000; Clay, 1998). They experience stories in their dramatic play, have stories read to them, and create stories with pictures, words, and bodily representations. Teachers can use IVR as a tool to frame the specific parts of their stories that provoke children to think about beginning, middle, and end.

Our story begins with an overview of the curriculum leading up to the teachable moment where IVR could make a difference by providing Ricardo (4 years old) with the opportunity to contrast and analyze two concrete examples of a story he is creating. The IVR served as a tool to extend his thinking and motivated Ricardo to remain engaged with his story in order to solve the problem he discovered and finish it to his satisfaction.

Ricardo's and His Friends' Knowledge of Story

This snapshot overview includes Ricardo and his two friends, each marking a set of symbols along drawn lines on separate sheets of paper in response to their teacher's request, "Can you tell me the story of your fantasy play?" They respond by drawing "symbol maps" of graphics along a line. Their representations show that they have assimilated the knowledge that stories can be communicated as sequences of symbols along a line. It is an idea they had experienced in many areas of the classroom where there were opportunities to sequence a "whole class symbol system" that had been created as a representation of a group story invented during circle time. The children and adults drew these symbols that tell the story of two friends who leave their house and go on a hike along a path to a mountain lake. The symbols represent things along the hike:

- a triangular roof as a house
- a square representing a parking lot

- a cross representing the beginning of the trail
- a line that curves upward forming a bridge
- two wavy lines depicting a river
- a triangle representing a mountain
- a bear created with two circle eyes, a dot for a nose, and a rectangle body
- a gorilla encountered along the way represented by a stick figure
- a circular head with wings and a tail as one of the geese flying overhead
- three circles grouped together representing rocks to climb over
- a large circle representing the lake at the end of the hike
- a half moon and a star in the sky

In the process of constructing stories with these symbols, the children added a zigzag line that looked like steps as a representation of climbing.

We considered this set of pictographs a "whole-class" system because the day after its invention, a majority of children in the classroom provided clear interest in the graphics and evidence of being able to "read" them aloud. When asked, the children said they were reading the pictures even though they were accompanied by words depicting the children's meaning.

The children were playing with two noteworthy sequencing strategies: (1) using reproductions of the symbol system (stamps) to construct sequences along a drawn line with "beginning" and "end" points, and (2) sequencing reproductions of the symbol system (cards) in relation to their order in the original "story map." The "beginning" and "end" features allowed children to establish the proper positions for "once upon a time" openings and closings with "the end."

Eventually, Ricardo participated in a collaborative project where he and his friends transformed their individual "story maps" into one mural. They made puppets that they could play with behind the mural, which could serve as a puppet stage.

Our observations informed us that the children's knowledge of beginnings and ends did not transfer into their puppet play. Thus, their puppet shows had no end points. Stories went on and on and on, often without particular reference to what just happened. A tale of a cougar hunting food one moment could be replaced with a fragment about a fireman. It was as if each child wanted to say something so the subsequent child just tagged on his story to the end of the first child's story. Teachers wondered if children could really understand the concepts of "beginning" and "end" without a contextual understanding of "middle." In an analysis of a story during circle time, children decided that a middle of a story was a "problem that had to be solved."

This insight about the concept "middle" led us to establish an area for performing familiar plays where children could experience the problem in the middle. Ricardo was a frequent participant. Teachers drew symbols, such as a girl with a hood or a wolf's head, in a sequence to show the linear progression of stories such as "Little Red Riding Hood" and "The Three Billy Goats Gruff" with pictographs on a nearby easel where children could see their place in the story. The symbol sequence served as another medium for children to identify the parts of their story. This sequencing of pictographs differed from the previously used "whole-class system" because they were generated by teachers as representations of an existing story not by children in the construction of a story. They were intentionally sequenced in the left to right pattern of written language to scaffold the children's understanding of the sequencing of story symbols along a line that they previously drew on paper.

The Provocation

One day, the stage was still set up for performance, but there was a change in focus. The teachers wondered if the children would transfer their experiences from enacting "familiar" stories to creating and enacting their "own" stories. Teachers drew the "whole-class symbols" onto cards that were placed in the clear plastic pockets of a hanging chart near the stage. They hoped the cards would provoke children to create their own plays by sequencing these cards into meaningful stories. Pads of paper, blank cards for

the chart pockets, and pencils were available for children to draw new symbols.

We had four questions to pose to children that would help us to notice more complexity of thought: Can you use these symbols (1) to write a play, (2) to tell the story of your play, (3) to perform a play, (4) to direct a play? The play writing would engage children in the sequencing of one symbol after another, matching each to a corresponding idea while also using the elements of story structure that they knew.

Our observations of children creating stories by stamping symbols in a sequence along a line revealed that our children already knew that stories have beginnings and endings with actions in the middle. We thought that telling the stories they created with symbols would provide children the opportunity to interpret their symbols verbally, forming a relationship between the symbol and their idea of its meaning. Performing these stories would allow them to enhance the meaning of their verbal transaction of the symbols with action and gestures. In directing, the child would have some expectation that the other performers will understand their point of view in order to follow the roles of his or her play and will learn variations of meaning through others' interpretations. Finally, we believed that the sequencing of symbols in the chart afforded the opportunity to discuss layers of complexity in story structure, such as the middle of a story, because the sequence would allow them to "see" their story as meaningful segments. Up to this point, our children did not reveal concrete ideas about what the "middle" of a story might be.

In our experience with constructive learning, we realized that children often chose a path that was anticipated by teachers although not necessarily expected. Thus, we found that Ricardo did not choose to create a play with the symbols that already existed on the cards in the hanging chart. Instead he "wrote" a play.

With newly invented symbols, Ricardo drew in a left to right progression on the notepad, verbalizing the story while drawing (see Figure 2). Next, Ricardo wanted to enact his story. He found the right props and used a clothespin (provided by his teacher) to attach his "story map" onto the chart where he could see it. He decided on his role as the fairy with the magic wand and assigned another fairy role to his teacher. This one teacher took on the additional roles while another teacher videotaped the performance.

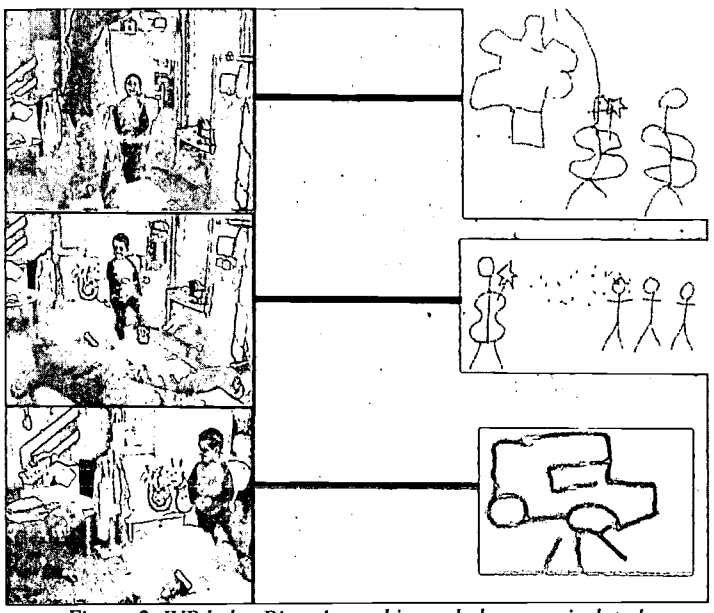


Figure 2. IVR helps Ricardo see his symbol map as isolated images that relate to individual frames of the enacted story.

While she was acting out the numerous roles, Ricardo's teacher asked him what happened next when she did not remember her part. At these points, Ricardo stepped outside of his fairy role to look for clues on the "story map" about what action came next. In the first instance, the teacher did not know what happened after the fairy turned her (when she is representing the audience) into a lizard, so Ricardo

looked at his "story map" and back to his teacher, then back to his "story map" while pointing to it and said, "into a car." Next, when the teacher, acting as the car, arrived at the hospital, Ricardo said, "It has a flat tire," and he looked to his "story map" to verify his direction.

Other children watched the performance and expressed interest in performing his play, so Ricardo read through his "story map" in preparation. His teachers used this opportunity to build on previous knowledge about beginnings, middles, and ends of stories by asking him to determine the middle of his story. He looked at the story map for a long time without speaking. To provoke his thinking, his teacher pointed to the figures of two fairies next to the tree (#4 in Figure 3) and said, "I see this part where the fairy jumps out as a problem. Is that the middle?" Ricardo said, "No that's not a problem."

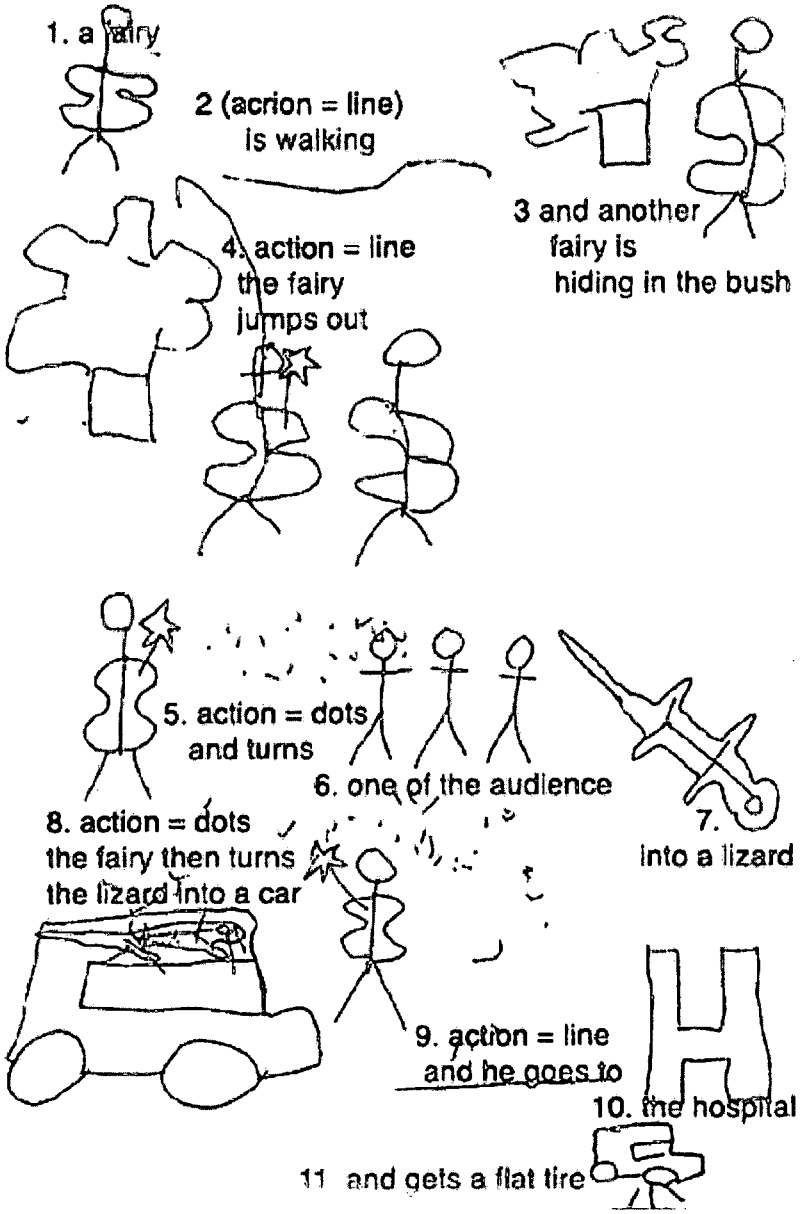


Figure 3. Ricardo invents new symbols to create a play.

The teacher wondered: Does the symbol map force Ricardo to see the story as a "whole picture" (single entity) or as separate parts with a beginning, middle, and end? Would IVR help Ricardo isolate the story into individual frames?

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Scaffolding with IVR

Within the course of their discussion about the beginning, middle, and end of his play, which took place immediately after Ricardo acted it out with his teacher, the teacher used IVR to test her hypothesis. She asked Ricardo if he would like to see the movie of the two of them acting out his play, and he agreed. She handed him his "story map" and replayed the entire enactment. When he saw his teacher get onto her belly after he flicked his wand at her, Ricardo said, "The middle is when the fairy turns the audience into a lizard." His teacher paused the replay as Ricardo immediately pointed to the symbols in his "story map" that represented the lizard (transformed audience).

His teacher wondered "Is there a problem when the fairy turns the audience into a lizard?" as she began to roll the videotape forward from the point where it had paused. Ricardo watched.

"No, the problem is when they get the flat tire," he said as he saw the video footage of himself telling his teacher to have a flat tire and her response, which was to touch her elbow as she knelt on the floor representing the car. The enactment ended at this point, the teacher paused the videotape, and Ricardo immediately pointed to the flat tire symbol that he had drawn. They had now identified three potential problems in his story.

The teacher asked, "Oh, if there are three problems, when the fairy is surprised, when the fairy turns the audience into a lizard, and when they get a flat tire, then where is the middle of the story?"

Ricardo pointed to the symbol of the flat tire on the "story map" and said, "This is a problem that needs to be solved. This is the middle of the story." "Does that mean this [the flat tire] is the end?" The teacher challenged Ricardo to decide whether the middle could be at the end of the story.

He told her, "I need to finish it," and then went to the paper where he arranged nine symbols into a sequence that ended his story, enlisting his teacher's help with the drawing of a couple of symbols (see Figure 4). He asked his teacher to draw an H for the hospital, followed by the lizard, and then a line. He said that these symbols meant, "The lizard came out of the hospital and went." Then he asked his teacher to draw the lizard in the car and told her it meant "into the car." He then drew a line as he said, "When it came out." Next he drew a fairy and said, "It was a fairy again." His three final symbols were a line, a house, and a fairy with a magic wand. He told his teacher that they meant "who went back home to his wife fairy." He ended his story with a home and a family.

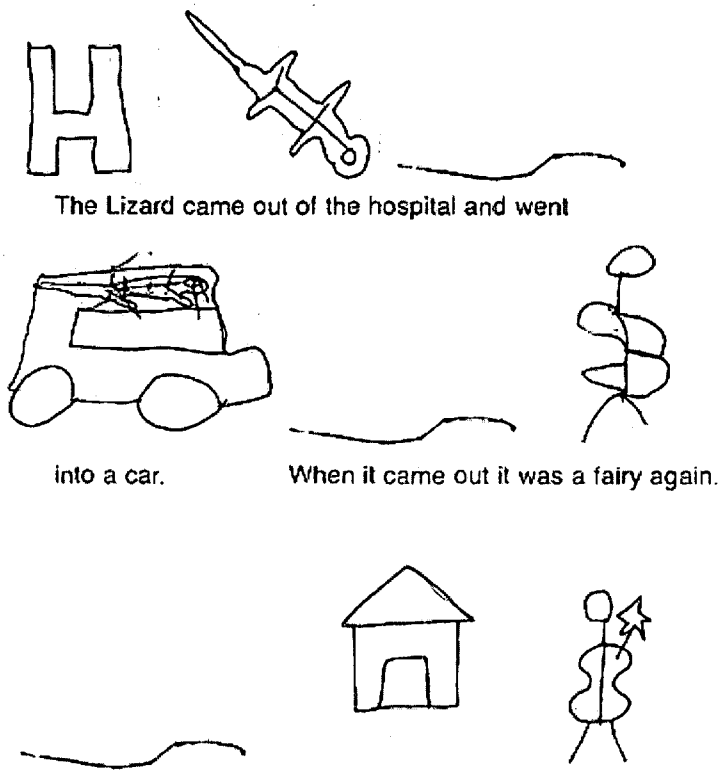

Figure 4. The problem at the end that IVR reveals motivates Ricardo to complete his story with nine new symbols.

On another day, the teachers revisited the video footage with the whole class. First, Ricardo told the first part of his story to the group by reading his "story map" (projected onto a large surface with an overhead) and simultaneously pointing to the symbols with a stick. He was reading the part that he initially drew and considered to be unfinished. The children were invited to watch the video replay of the enactment by Ricardo and his teacher, and to then to point out what they thought were the problems in the story.

Child one took the pointer, pointed to the flat tire at the end, and said,"This is a problem." Child two pointed to the lizard and then immediately moved the pointer to the flat tire. Her teacher said, "I noticed you pointed up here (pointing to the lizard)." She responded by saying, "I thought it was the flat tire." Her teacher thought that maybe she changed her mind to keep in agreement with her peer who just had a turn so she added, "It's ok to find more than one problem. Can you tell us what the problem was?" Child two said, "When the audience turned into a lizard." The teacher responded with, "That could be another problem." Child three pointed to the first car symbol and said, "The fairy turned him into a car." The teacher added, "that is another problem." Child four nonverbally agreed with child three by pointing to the first car symbol, and child five nonverbally agreed with child one by pointing to the flat tire symbol.

The teacher now added, "The thing that's interesting is that for some of us you're pointing to that as the problem (pointing to the flat tire symbol). Would you agree with me that the beginning of the story is kind of up here (pointing to top of page), and the middle of the story is kind of here (pointing to middle of page), and this is the end of the story, down here (pointing to bottom)?"

Child five then added, "I see some problems at the top. When the fairly surprised that one," as she pointed to the symbol of the fairly jumping from behind the bush. Teacher, "That could be a problem."

Ricardo then took the pointer and pointed to the flat tire symbol while saying, "The story isn't finished because this is a problem that needs to be solved." The teachers asked if other children agreed, and a majority agreed with Ricardo who was then invited to share the end of his story with the group. The

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teachers then asked if the other problems were in the middle. Child five said, "Yes, because they need to be solved," and a majority of children agreed.

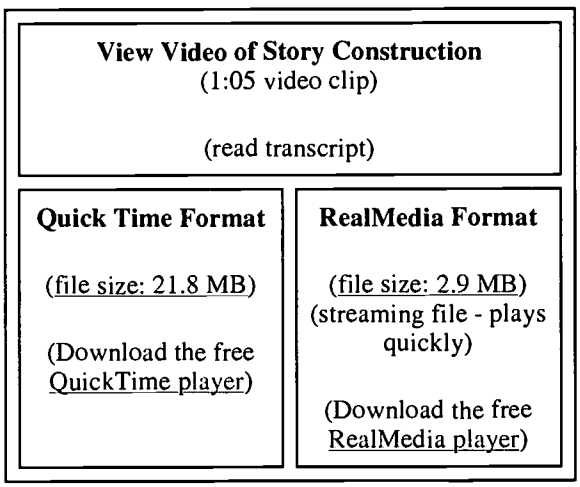
This discussion allowed the children to scaffold one another's understanding of story parts, and the children learned that a story could have more than one problem in the middle.

What Teachers Learned

The IVR provided a realistic view that enhanced the children's understanding of the symbol sequence. Ricardo seemed to see the story map as a whole picture, while the IVR revealed one problem at a time so that he could identify each as separate from the entire sequence. Remember, as he viewed the video replay of the performance, he identified each problem in the enactment and immediately pointed to its corresponding symbol in his "story map" as his teacher paused the tape. This approach promoted his concept of story structure as having segmented parts.

The value of having the "symbol map" on hand while viewing the video is that it provided two formats for Ricardo to contrast. In his review of his "symbol map," when asked to locate the middle, his teachers thought Ricardo conceptualized the sequence in its entirety, as a "whole" story. The act of pointing to the parts of his "story map" that corresponded to those he commented on while viewing the video led his teachers to believe that the video helped him "see" the actions as isolated instances that he could relate to the sequence of instances marked in his "symbol map."

Both media reveal the possibility that three problems could be situated along the linear sequence of the story and in combination could represent the middle of the story. The data do not reveal if Ricardo had assimilated the idea that the middle of a story is a combination of problems or that the first two problems in his story were solved. However, this approach did provide him with evidence of a problem that was left unsolved at the end of his sequence of symbols. When he pointed to his symbol of a car with a flat tire and said, "This is a problem that needs to be solved," he revealed a concept of a story that required him to solve the unresolved problem regardless of other problems cited in the story.



Conclusion

Both IVR episodes described in this study provide evidence that the children are attracted to revisiting previous events by watching their actions on the viewing screen of the video camera. This process engages them and with the thoughtful provocation of teachers can be used as a tool to contrast a view of events with the child's understanding of the actual event. Thus, IVR aids the children's construction of knowledge, providing a format for developing their understanding of social conflicts and story structure.

Young children construct knowledge about interpersonal relations when they have the opportunity to reflect on social conflicts in their lives, make mistakes, experience their consequences, and develop their own reasons for solving problems. IVR is a tool promoting a meta-perspective that helps children reflect on their behavior from the perspective of the other child. IVR gives the teacher the opportunity to see the child's actions in a new light. Teachers using IVR recognized the need to step away from the difficulty of a situation to reflect and review in order to isolate specific segments to question and wonder about with the children. It helps the teacher guide children to recognize various points of view, raise issues of fairness, and encourage solutions to interpersonal problems. By taking this extra hour or so in the day, the teacher is allowing the children to move beyond the difficulty, waiting for the children to be in a clear state for the reflection process. The reality of the video presentation is potent enough to draw the children into a dialogue that the teacher can facilitate with careful questioning that draws out and extends the children's thoughts. This method benefits both the teacher and the children.

When IVR was used in a part of the children's learning process where sequencing, as opposed to affect, is the focus of the child's cognitive conflict, teachers learned that revisiting can take place on-the-spot when the camera is available to document the learning events. In the story construction episode, the IVR helped the child formulate whole-to-part relationships that would be too complex to articulate in words. Although researchers on reading and writing debate the benefits of phonics and whole language approaches to literacy (Barbour, 1999; Williams, 2000), there is evidence that among children from second grade into middle school years an understanding of story structure promotes better comprehension of stories (Williams, 2000). IVR has the potential to help young children articulate and analyze their many representations of an individual story, supporting their developing understanding of story structure, which in turn strengthens their skill with story comprehension. IVR can be used as a reflective tool in other areas of children's play where sequencing occurs, such as when a child's block structure falls over during construction. IVR at this point can help the child to focus on and contrast individual segments of the building process as unsuccessful (leading the tower to tumble) or successful (allowing the tower to get taller) strategies. Knowing how to do a somersault is different from understanding how one action of the somersault relates to another. IVR helps children to recognize and articulate those differences.

In conclusion, we have found that there are several advantages to utilizing videotaping and IVR in the classroom with regard to social conflicts. IVR gave the teacher the opportunity to discover the true intent of the child who exhibited challenging behavior and to see the child's actions in a new light. The teacher no longer looked at the child as disruptive, but as one who wanted to learn how to have friendship with peers. Further revisiting of videotapes of social interactions involving this child revealed that the child who exhibited challenging behavior indeed had a meaningful and positive friendship with that specific child. After revisiting his positive interaction with that child, the teacher tried to find patterns for him to apply with the other children in the classroom.

The success of IVR in these two instances suggests the need to research the use of IVR as a tool for scaffolding in other areas of the early childhood classroom.

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Author Information

Seong B. Hong, Ed.D., is an assistant professor in early childhood education at the University of Michigan-Dearborn School of Education. She received her doctorate in curriculum development and teacher education from the University of Massachusetts, Amherst. She has been studying the Reggio-inspired approach since 1991, and she has extensive experience applying documentation and revisiting children's work as a teaching and learning tool. She also has several publications regarding the application of the Reggio-inspired approach, and her current work deals with action research and the use of technology as a tool for constructivist learning.

Seong B. Hong, Ed.D.
University of Michigan-Dearborn
School of Education, Room 208
4901 Evergreen Road
Dearborn, MI 48128-1491
Telephone: 313-593-3613 (office)
Email: Seong@umich.edu

Jane Tingle Broderick is completing her doctoral work at the University of Massachusetts and has accepted a position as assistant professor of early childhood at East Tennessee State University in Johnson City.

Jane Tingle Broderick
Assistant Professor
Human Development and Learning
East Tennessee State University
Johnson City, Tennessee 37614-1707
Telephone: 423-439-7688

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Understanding the Relationships among American Primary-Grade Teachers and Korean Mothers: The Role of Communication and Cultural Sensitivity in the Linguistically Diverse Classroom

Heayoung Yang & Mary Benson McMullen
Indiana University

Abstract

To most effectively meet the needs of young primary-grade children for whom English is not the home language, teachers must come to understand each child's family culture, how the family transmits that culture to the child, and cultural and familial expectations for the child behaviorally and academically. The best source for this information is the parents themselves. The primary goal of this study was to examine the nature of the relationship between American teachers and Korean parents, particularly in terms of effectiveness of communication and cultural sensitivity in exchanging information. Much was learned from extensive interviews with four teachers and five Korean mothers about their perceptions and concerns, best methods of communicating, and expectations about the roles of teachers and parents. From what was learned, suggestions were made to facilitate relationships between American teachers and Korean parents as well as parents and teachers of other non-native English-speaking children.

Introduction

One of the biggest challenges currently facing American teachers is how to provide appropriate care and education to classrooms of children who are increasingly diverse linguistically and culturally. It can be very difficult for teachers to communicate with and plan curriculum effectively for students who do not interpret symbols and behaviors in the same way they do. Many parents who come to the United States from other countries, especially those who do not speak English comfortably or fluently (typically, parents who have moved to the United States recently), have difficulty in communicating with their children's teachers. In addition, such students often face American teachers who do not have adequate knowledge about their cultural backgrounds, which may lead to misunderstandings, negative perceptions, and inappropriate expectations.

What follows is a story based on an event that was described in an interview conducted for this research that demonstrates how misunderstandings can arise and also how these situations can be dealt with effectively by teachers and parents who invest effort in maintaining communication with one another.

Scene #1: A Parent Meeting

Korean Mother: Are there any concerns that you have about Youngsoo's behavior in class?

American Teacher: Well...sometimes, when I try to give Youngsoo direction, he doesn't seem to pay attention to what I am saying. As a matter of fact, he looks somewhere else and appears distracted whenever I speak to him directly.

Scene #2: Youngsoo's Home

Korean Mother: Why do you not pay attention when your teacher talks to you?

Youngsoo: Mom, I do pay attention, but you told me not to look at you straight in the eye when you scold me.

Korean Mother: So, what do you do when your teacher talks to you?

Youngsoo: I look at the floor with my head bowed down. Also, her eyes are really big and blue. I am too scared to look at her eyes.

Scene #3: The Next Day (Youngsoo's Mother Calls Teacher)

Korean Mother: I had a talk with Youngsoo yesterday. There seems to be a misunderstanding. Youngsoo tells me that he does pay attention when you talk to him. The reason why he does not look at you is because, in Korea, we teach children not to look the teacher straight in the eyes when they are being scolded.

American Teacher: Thank you for letting me knows this. It helps me understand Youngsoo so much better and makes me feel better about his reactions to me. But it brings up something that seems to be another misunderstanding. I need to let you and Youngsoo know that when I talk to students such as your son directly, even if sometimes it is about behavior, it is not usually to scold them but to suggest alternative behaviors or discuss with them better choices that they may make next time a similar situation arises.

Korean Mother: Oh, I see! Usually when a teacher speaks directly to a student in Korea, it is to scold them for misbehaving. I'll talk to Youngsoo about what you have said.

In this case, through communication with one another, the Korean mother and the American teacher were quickly able to clear up a series of misunderstandings. The teacher came to understand that Youngsoo's behavior was not meant to be disrespectful but was rather culturally explainable. The mother learned that it is common for American teachers to speak directly to individual children for a variety of reasons. Mother and teacher had an opportunity to come to better understand each other's culture-based expectations, and that understanding could, in turn, benefit the child. However, this case is probably not typical because Youngsoo's mother speaks English very well, having been an English teacher in Korea. Too often, parents from other countries and American teachers are not able to so quickly overcome their misunderstandings.

Increasing numbers of culturally and linguistically diverse children are entering U.S. schools, and teachers in the United States are working in far more heterogeneous classrooms than ever before. The teaching force itself, however, is quite homogeneous, and there is a disparity between these teachers and the increasing cultural and ethnic diversity of public school student populations (Seidl & Friend, 2002). In 2000, 85% of teachers were from the White, middle-class majority, while 33% of school-age children represented minorities and approximately 39% of teachers had students with limited English proficiency in their classrooms (Xu, 2000). Earlier data from the U.S. Department of Education (Henke, Choy, Chen, Geis, Alt, & Broughman, 1997) reflected a similar figure for the percentage of White teachers (87% in 1994), indicating that very little, if any, progress has been made in diversifying the teaching population over the past decade. The Department of Education also provided data on minority representation among

the teaching workforce in 1994: 7% African American, 4% Hispanic, 1% Asian/Pacific Islander, and 1% Native American. It is estimated that whereas students of color (which include a large percentage of linguistic minorities as well) will make up about 50% of the K-12 population by 2020 (Holmes Group, 1995), the U.S. teacher population will remain dominated by White teachers for whom English is their first and, typically, only language.

Although in recent years, teacher education programs have increasingly focused on better preparing their graduates to work with diverse populations of children, and numerous inservice professional development activities have centered on helping teachers understand diversity, many practicing teachers in the United States still feel uncomfortable working with minority students (Sleeter, 2001). It is critical, however, for teachers to respond to the startling changes in the composition of the student population by finding better ways to understand minority students and by developing more effective ways to work with culturally and linguistically diverse students.

Consequently, it is important for preservice and inservice teachers to learn to communicate effectively with parents who do not interpret symbols and behaviors the same way they do, and whose perception of the role of parents in children's schooling may be quite different from the unprepared teacher's expectation. For example, many American teachers may not understand that "whereas parents are actively engaged in the home with their children's education, there is not a matching interaction between school personnel and parents" (Hidalgo, Siu, Bright, Swap, & Epstein, 2001, p. 509). By opening themselves up to new conceptions and definitions of parent involvement as well as modes of communication, teachers and parents together can create an environment that can be powerful and transformative for language-minority students' healthy development and well-being.

Rationale for This Study

To date, too little attention has been paid to the relationships between parents who are non-native English speakers with children in American elementary schools and their children's teachers. The authors of this paper focused their efforts on examining Korean children and the relationship between their parents and teachers. This interest arose primarily from the authors' awareness of a large and growing number of Korean families living within their relatively small midwestern community and concerns about how the children and families were adjusting to the U.S. school system. The primary researcher/author is a doctoral student from Korea with extensive experience in schools and teaching in Korea, who was thus in a position to understand the perspectives of the parents, children, and, to some extent, the teachers in this study. The secondary author, a White, Anglo-American, is a teacher educator and researcher in a large university early childhood teacher preparation program (birth to third grade), has three children who have been in the public school system in the community, and was herself a teacher for several years before becoming a professor; she could thus contribute to the analysis her expertise in terms of the preparation and professional development of primary-grade teachers as well as an understanding of the culture of teachers in the American public school system.

The primary goal of this study was to examine the following question: What is the nature of the relationship between American teachers and Korean parents as seen by both the teachers and parents with respect to effectiveness of communication and cultural sensitivity? From what was learned from the interviews, practical suggestions were made to help facilitate relationships between American teachers and Korean parents as well as parents of other non-native English-speaking children.

Method

Sample

In order to study this topic, four Anglo-American primary-grade elementary school teachers who have had experiences with Korean mothers and five Korean mothers who have primary-grade children in an American public elementary school program were interviewed (see Tables 1 and 2 for data describing the

teachers and mothers more fully).

Table 1
Descriptive Data for American Teachers

	Teacher		
Subject	**Gender**	**Grade Level**	**Years Experience**
American Teacher A	Female	1st	15
American Teacher B	Male	3rd	5
American Teacher C	Female	2nd	7
American Teacher D	Female	1st	12

Table 2
Descriptive Data for Korean Mothers and Their Children

	Child		
Subject	**Gender**	**Grade Level**	**Years in the U.S.**
Korean Mother Na	Male	1st	1
Korean Mother Sa	Female	1st	1
Korean Mother Da	Female	1st	1
Korean Mother Ja	Male	2nd	1
Korean Mother Ga	Female	3rd	2

The primary researcher met with the principal of an elementary school in which many international families in her community were enrolled to discuss the research proposal and to request consent to contact primary-grade teachers in her school. The researcher targeted teachers who currently or who had in the past had Korean children in their classrooms. Once permission was granted by the principal, the researcher contacted the teachers and scheduled interviews with those teachers who agreed to participate. The Korean mothers represent a similarly convenient sample. In this case, however, the primary researcher was personally aware of several Korean mothers who had primary-grade children in the local school system within the community. The Korean mothers invited to participate received an explanatory letter about the study both in English and Korean, together with the consent form. Provisions for further clarification of the study and for answering any questions were made. None of the participants was compensated for participating in the study.

As can be calculated from the data in Table 1, at the time of the study, the four participating teachers had been teaching an average of 9 years. The five Korean mothers interviewed had been in the United States from 1 to 2 years. All of the mothers had previous experience with Korean teachers at the kindergarten or first-grade level and the educational system in Korea before moving their children to the United States.

The small midwestern city in which the study was conducted has a population of about 70,000. It has a minority population of approximately 7%. The state university in this city has about 32,000 students. There are about 1,300 Koreans in the city, about 700 of whom are students studying at the university. Many of the approximately 600 remaining Koreans in this city are family members of the students. Thus, most of the Koreans who reside in this city are sojourners who intend to return to Korea after they complete their study or work. There are, however, a few Korean Americans in this city who are more permanent residents, and these people tend to work as proprietors managing Korean groceries and Korean

restaurants, or as professors at the university. In addition, there are a few children from Korea who were adopted by Anglo-American families in the community.

Procedures

Semi-structured, open-ended interviews took place in the teachers' workplaces and mothers' homes, at times convenient for them. The primary researcher interviewed each Korean mother once for approximately 2 hours in their shared native language; extensive notes were taken in Korean and then were translated into English. The specific questions that were asked of both the teachers and the mothers are shown in Figure 1.

The Korean mothers were asked the following questions:	**The American teachers were asked the following questions:**
1. How well do American teachers understand your cultural background?	1. How well do Korean parents understand the American school system?
2. Compared to Korean teachers, what are your thoughts and feelings about American teachers?	2. Based on what you know about Korean parents, what are your thoughts and feelings about them in general?
3. What aspects of the American school system do you have a particular interest in finding out more about?	3. What method of communication is primarily used between you and your Korean parents, and how often do you communicate with your Korean parents?
4. What is your primary means of communicating with your child's American teachers?	4. What are the responses from Korean parents when you inform them of situations in which their child is misbehaving or that their child deserves commendation for good behavior?
5. Have you had any experience, good or bad, that you can relate about your relationships with the American teachers?	5. Have you had any experiences, good or bad, that you can relate about your relationships with Korean parents?
6. Do you think that it is helpful to communicate with American teachers in order for your children to adjust to and do well in American schools?	6. Do you think that it is helpful to communicate with Korean parents in order to better understand their culture and to educate their children?

Figure 1. Questions asked of the Korean mothers and American teachers in the interviews.

The interviews with American teachers were conducted by the primary researcher, one-on-one in English; were tape-recorded; and then were transcribed. Teachers were encouraged to elaborate upon their experiences and opinions and to give their own narrative accounts in response to each question. More detail or clarification was asked for whenever the situation warranted. At the beginning of the interview, the goals and procedures of the study were explained to teachers and mothers, and they signed informed consent forms.

The primary researcher coded all interview transcripts using methods of constant comparison (Merriam, 1998). The secondary researcher, a native English speaker, reviewed the coded data and aided in the interpretation. The two researchers then returned to the data and developed a more comprehensive understanding of how the data fit the two conceptual categories that addressed the primary goal of this study—effective ways of communicating and cultural sensitivity. Researchers shared the interpretive process (tentative interpretations) with research respondents as a form of member checking. Interviewees verified that researchers had reflected their perspectives and checked the accuracy of the depiction. By sharing working drafts with practicing teachers and other curriculum scholars (researchers and teacher

educators) at the researchers' university and asking them to comment on the findings, the internal validity of the findings and interpretations was enhanced.

Results

The responses to the interview questions were analyzed around the two broad themes of effective ways of communicating and cultural sensitivity. Responses from both the American teachers and the Korean mothers to the interview questions were incorporated to inform these conceptual categories. The quotations included in the presentation of these results below are representative of the sentiments and perceptions expressed by multiple respondents.

Effective Ways of Communicating

The Korean mothers and American teachers who were interviewed were primarily using phone calls, electronic mail (email), face-to-face parent-teacher meetings, and notes to communicate with each other. Korean mothers expressed general dissatisfaction with methods of communication that required understanding and speaking English, such as is required in telephoning:

> I received numerous phone calls from my child's teacher. She would usually call me to tell me that my child caused some kind of trouble at school. The general impression I received from the teacher was that she was indifferent to the needs of my son. (Korean Mother Na)

This discomfort with the language barrier was also expressed when it came to face-to-face meetings between teachers and mothers:

> Even though I meet with the teacher in person, talking in English with him/her is quite difficult and awkward. If I have to contact the teacher, I usually prefer using email. This way, I don't have to worry about pronunciation, and the communication becomes clearer. (Korean Mother Ga)

Emailing between parents and teachers was reported to be very useful by both the parents and teachers interviewed. Although many Korean parents may not speak English fluently, many can read and write English because most of them had English instruction during their own years of education in Korea and found this method a comfortable way to communicate with their children's teachers.

Roles of Teachers and Parents

Outwardly, teachers indicated that Korean parents showed nothing but great respect and admiration for them. Korean mothers interviewed said that they were brought up with the belief that teachers are the authorities in all matters related to the education of children, and that it is culturally appropriate for them to always defer to that authority. Thus, if their children's teachers confirmed information or offered opinions about academic or classroom behavior issues concerning their children, the Korean mothers reported that they typically accepted the teachers' opinions without openly questioning or voicing reservations. In fact, according to both the Korean mothers and the American teachers, Korean mothers seek frequent contact with their children's teachers and often request advice from teachers.

Korean parents are eager to know everything about how their children are doing in school and thus see it as a one of their duties as parents to work hard to maintain contact with their children's teachers. In addition, all of the Korean mothers interviewed said that they and most Korean mothers help with their children's homework and take great pains to make sure that it is completed, done well, and turned in on time. In fact, much of the communication that occurs between Korean mothers and teachers that originates from the mothers centers around their children's homework, as expressed by Teacher B:

> Korean parents are much more involved. If anything goes wrong, they want to know why, and what they can do. I found Korean parents that I have had were very upset with their children when the work was not done. (American Teacher B)

Figure 2. Helping with homework is considered an important role for Korean mothers.

It should be noted that two of the Korean mothers, Sa and Ja, had what may be an unusual perspective on the role of the teacher because they had worked in the education field in Korea. Sa and Ja indicated that they felt that they were able to communicate more effectively with American teachers than some of their Korean peers and that they were better able to apply the teachers' information to their children:

> I met my child's teacher three times since I've been here. The teacher has given me very exact and detailed information about my daughter's performance and attitudes. I was very glad that the teacher gave me precious advice about my daughter to me. (Korean Mother Sa)

> My son's teacher gave me very critical advice about my son's reading performance. It was very helpful. (Korean Mother Ja)

Cultural Sensitivity

In the interviews, when teachers were asked how they felt about the cultural differences between American and Korean children, they typically responded with some version of the phrase, "kids are kids," and indicated that what they meant by this statement is that children are basically the same all over the world. Some of the teachers indicated that they believed that any differences that they saw in Korean children were better attributed to individual rather than cultural differences, and children should not be treated any differently from one another within a group:

> As I see it, kids are kids. Korean children are not that different from American children or children from the other countries.... I think it just has to do with "boys will be boys." I don't think it has anything to do with Korean culture or the American school system. (American Teacher B)

> Although there are a lot of Korean students, we cannot treat them differently. Students from 37 countries are represented in our school, and we have to treat everyone the same. (American Teacher C)

Teachers emphasized "fairness" to all children as their approach to being culturally sensitive and felt little or no need to address the individual needs or uniqueness of each child. Although acknowledging little difference between Korean children and any of their other students, the teachers did see differences in Korean mothers, particularly in terms of their personal characteristics and specific concerns.

Characteristics of Korean Mothers

The overwhelming perception among the American teachers was that Korean parents, and Korean mothers in particular, are very involved in school life and concerned with their children's education:

> I have been teaching at this school for 15 years and have many experiences with Korean children and their parents. Korean parents are very supportive and helpful. For example, they do not miss parents' nights and parent-teacher meetings. And on international day, Korean parents eagerly volunteer. Even at the first parent meeting, Korean fathers and mothers come together to participate in it. (American Teacher A)

However, an important distinction in terms of individual and group participation became apparent from both the parent and teacher interviews. Although Korean mothers were more than willing to participate in teacher and parent meetings as individuals, they were rarely willing to speak up at such group-level activities. For instance, Korean mothers were reluctant to take active roles in school policy-making decisions:

> Individually, Korean parents are happy to volunteer, but we (Korean mothers) tend to avoid a situation where we may have to speak up to a group of American parents and teachers. Thus, no Korean mother is on the PTA board. (Korean Mother Ga)

Concerns about Academics and Language Learning

All four teachers felt strongly that the Korean parents with whom they have had experience have been, in their opinions, "overly" focused on academic achievement in general and on their children's mastery of English in particular. The Korean mothers felt, however, that a major advantage of coming to America is that their children will have the opportunity to become fluent in English by using it in everyday life while at school; only with sound academic qualifications and fluent English-language skills will their children secure the best jobs in the future. The mothers believed English-language qualifications to be a passport to a high status career, fame, respect, and a bright future:

> Almost all the parent-teacher meetings I have with Korean parents are about their child's studying. Two of my students who just came to my school are already transferring to another school. Their parents told me that they are transferring because there are too many Korean children at this school and their child's opportunity to learn English is not as great as they had expected. In this school, their child preferred talking in Korean and wanted to play with other Korean children. To me, this situation is very hard to understand. (American Teacher B)

Because, according to the Korean mothers, education is seen as an important means to success, as well as a measure of one's self-worth, education is an important and frequent topic of discussion in Korean culture.

Figure 3. When a group of Korean mothers meets, the topic of conversation often turns to education.

Another related concern that Korean mothers had, perhaps justifying their sense of urgency in having their children master English quickly, was that before their children had mastered fluent English, they felt their children might have trouble demonstrating their academic competence and thus not receive the academic instruction and challenges they needed for optimal learning:

> If the teacher had no experience with students from Korea or other countries and with how the students might demonstrate effective learning even without the use of perfect English, the teacher might tend to confuse inability to speak perfect English with the inability to learn. (Korean Mother Da)

The Korean mothers were reluctant to express such a concern to their children's teachers, however, because they feared that voicing this concern would be seen as disrespectful.

Discussion

The primary purpose of this research was to explore the nature of the relationships between American teachers and Korean parents as seen by the teachers and parents with respect to effectiveness of communication and cultural sensitivity. To achieve this goal, extensive interviews were conducted with four elementary school teachers who had experience working with Korean students and their families and five Korean mothers who had experience as parents of children who had been students in Korea and who were now in the United States.

Several conclusions can be drawn from these interviews about this particular group of American teachers and Korean parents that may have implications for other teachers who work with Korean students and their families, as well as other linguistically different students in elementary school settings. For example, other researchers have found that Vietnamese, Japanese, Hmong, and Chinese parents, like Korean parents, have difficulty understanding the function of such well-established U.S. parent involvement programs as the PTA (Lee, 1995). Parents from these Asian countries when in their native land, do not take active roles in schools, in part because of the much higher level of respect accorded their teachers than is shown in the United States. Thus, teachers who work with families who speak languages other than English and who come from cultures with different customs and values need to make an effort to understand the mindsets that parents might bring to their educational situations.

The relationship between the American teacher and the parent from another country is highly complex and must be interactive, involving openness and understanding by each party. Whether communicating face-to-face, by telephone, or by email, the key to positive parent/teacher relationships is communication, and the key to communication among teachers and parents from other countries is cultural sensitivity. It is up to the teacher to introduce and explain the American school system and the teacher's role in the American classroom, to make parents feel valued, and to convince them that their child and children of all backgrounds deserve and will receive their full consideration. But, it also requires a willingness on the part of the parent to share information, to provide insight into the child's home culture and their own

personal views of education, and to share their major concerns. Communication must be used to foster the coming together of the teacher and parents around their mutual goal of helping the child achieve positive growth, development, and learning outcomes.

Gay (2002) suggests that teachers must understand and see each of these children as individuals and then use that information to help the child: "Teachers need to know how to use cultural scaffolding in teaching these students—that is, using their own cultures and experiences to expand their intellectual horizons and academic achievement" (p. 109). Parents become key informants in helping teachers to develop the understanding about the child's home culture necessary to do such "scaffolding" most effectively, building understanding and helping teachers determine what would be most culturally and linguistically appropriate for their children. Such collaborations can be mutually satisfying for teachers and parents but, perhaps more importantly, can lead to healthy outcomes for children who feel valued and understood. This result requires what Powell (1989) referred to as a "genuine collaboration" that unfortunately is rarely encountered in such situations but is certainly a worthy goal toward which we should work.

Conclusions from the Study

According to Lee (1995), Asian parents are reluctant to visit the school their child is attending or to attend school meetings, concluding that Asian parents rarely involve themselves directly in school affairs because Asian parents do not know how to become actively involved in their children's school activities. In this study, a different view emerged. The Korean parents, although expressing a reluctance to participate in the PTA board and other group activities, were very involved one-on-one with their children's teachers. Two reasons emerged to explain Korean mothers' reluctance to participate or at least speak out in group forums in the schools, one of which was because they lacked confidence in their ability to speak English, particularly in large-group settings. Another reason was rooted in Korean parents' deep, culturally based respect for school administrators and teachers, and their deference to authority, both of which originate in the ideals of Confucianism with which they were raised. They believe that their parental role is to listen, respect, and to follow the professional judgment of teachers and administrators. This attitude may lead to unfortunate consequences for both parties for at least two reasons: such attitudes may be misinterpreted by American teachers as a lack of caring about or willingness on the part of Korean parents to be responsible for school affairs and school policy decisions, and many concerns that Korean parents may have may remain unvoiced due to a fear of appearing disrespectful to the American teachers.

The tendency for Korean mothers to wish to contact and speak frequently with American teachers was often interpreted by the American teaches as an extreme, perhaps obsessive, emphasis on education and achievement. It did, however, as was demonstrated in the vignette related at the beginning of this paper, have the benefit that it often ultimately lead to increased understanding between the Korean parents and the American teachers. The more that parents and teachers shared information about students' school progress in casual as well as formal communications (whether face-to-face, over the telephone, or using email), the more that was learned by each of them about one another's cultural backgrounds and norms, and the more effective subsequent communication became. It seems that if teachers and Korean parents make an effort to connect through frequent communication, the likelihood of negative parental or teacher perceptions or cultural misunderstandings can be reduced.

Sleeter (2001) examines the growing body of research about helping "young White preservice students develop the awareness, insights, and skills for effective teaching in multicultural contexts" (p. 101), an area of much current interest for researchers. However, more than a decade ago, Banks (1991) asserted that to become effective multicultural teachers, teachers must have pedagogical knowledge of the characteristics of students from diverse cultural backgrounds, a goal yet to be achieved in many if not most teacher development programs. Although much of the current literature concerning multicultural education is informative, the information provided related to Asian parents and students remains abstract and continues in some cases to even reinforce stereotypes. Such information does not translate well in a useful and productive way into the concrete, real-life situations that teachers face.

One such reality that teachers must be aware of is that linguistically diverse students understand the language far sooner than they speak it fluently, and thus language itself cannot be used as an indicator of

academic ability or understanding. The inability to use English correctly is a process of adjustment and not an indication of low-level cognitive abilities (Cummins, 1986):

> My child's teacher did not appear to realize that my daughter had developed her ability to understand English much more quickly than her ability to speak English. (Korean Mother Da)

The results of this study leave the researchers optimistic in some ways, however. When asked explicitly, Korean mothers indicated that they believed that they had positive working relationships with and that they maintained effective communication with their children's American teachers. Likewise, all four teachers stated that they maintained good and steady communication with Korean mothers and that their general impression was that the Korean parents with whom they worked were respectful of teachers' professional judgment. Despite this mutual belief that communication was positive, glimpses of the inevitable cultural misunderstandings that are bound to occur were revealed in some of the stories that the teachers and the mothers shared, for instance:

> When I taught first grade, I had five Korean children. We had a Halloween party. One Korean parent brought me some roses. It was very funny because Halloween is a kind of kids' holiday. (American Teacher A)

In Korea, when parents meet teachers, they often give flowers to teachers; it is not a "funny" thing in Korea but rather a sign of respect. The teacher probably did not understand this cultural difference because giving flowers to teachers at such an occasion is not an American custom.

In addition to examples of simple misunderstandings of cultural norms and traditions that emerged occasionally in the interviews, teachers did express a few more worrisome stereotypical images of "Korean students" and "Korean mothers." For example, teachers frequently and repeatedly mentioned during the interviews sentiments such as, "Korean students are very good at math," "Korean students are all very polite and they all bow," and "All Korean parents greatly respect teachers." The teachers seemed closed to the very idea of openly acknowledging and discussing that there could be deeper cultural differences, preferring to focus, it seemed, on the similarities and shared values between themselves and the Korean mothers or parents with whom they had worked, or reducing the differences to these stereotypes and looking no further. The attitude of "kids are kids" that the teachers expressed, for instance, which on the surface may appear quite admirable, may in fact demonstrate cultural insensitivity, or an unwillingness to see what may be truly important differences, and thus hamper the possibility of coming to understand cultural differences and developing culturally responsive pedagogies. Such an attitude certainly does not lead to the cultural scaffolding promoted by Gay (2002).

Implications

Several implications emerged for teachers of children from other countries from the interviews conducted in this study. Despite the fact that this study was limited to examining Korean mothers and American teachers, many of these implications may be able to be generalized to the care and education of other linguistically diverse groups of students as well. These implications are summarized in Figure 4 and discussed in more detail below.

1. Define and research the cultural and ethnic groups represented by your students.

2. Avoid stereotyping based upon students' membership in their cultural groups.

3. Become aware of how the families transmit their cultures to their children and the cultural and familial expectations for their children both behaviorally and academically.

4. Become familiar with how the cultures represented by your students define the roles of "teacher" and "parent."

5. Identify effective communication strategies based upon the needs, skills, and comfort levels of your students' families to different communication methods, technologies, and forums.

6. Facilitate discussions among new families and those who have been in the school or country for a longer period so that new families can learn about the cultural norms and expectations in U.S. schools.

Figure 4. Summary of suggestions for facilitating the understanding between American teachers and linguistically diverse students.

One of the more critical things for teachers to remember when working with linguistically and culturally diverse students is to *carefully and specifically define the population that they want to know about.* For instance, even in research literature, most of the data about Korean students are aggregated into the one single category of "Asians." It is important to note that in the Asian population, as in other ethnic groups, significant differences exist based upon multiple sociocultural variables, including country of origin, religious beliefs, generational status, language usage, and social class. So it is important, for instance, to know and come to understand what it might mean if a child is Japanese, Korean, or Taiwanese, rather than just finding out what it means to be "Asian" or what it might mean if a child is German, Dutch, or Italian rather than considering them simply "European." Recognizing these group differences is crucial for teachers who have language-minority students in their classes.

A word of caution must accompany this first recommendation, however. While recognizing group differences, it is important for teachers to *avoid assigning characteristics to individual children in their classrooms that may be based upon stereotyped images of their particular cultural group.* Stereotyping exists when inaccurate characteristics of a group are ascribed to a single individual (Bennett, 1990). As such, we need to be aware of more accurate generalizations about groups. Teachers who have linguistically and culturally different students in their classes should learn enough about each of their students' cultures to make accurate generalizations in order to reduce unnecessary misunderstandings but at the same time exercise caution about over-applying these broad generalizations to individual children and their families.

For teachers to be most effective, they must *become aware of their students' families' cultures, how the families transmit their cultures to their children, and the cultural and familial expectations for their children behaviorally and academically.* The only effective way to get this type of information is from their students' parents. Teachers can organize both formal and informal parent-teacher meetings with the specific agenda of discussing cultural issues and concerns that may or may not be related to culture. It is through such meetings that parents and teachers can determine whether students' behavior is culturally explainable, come to understand each other's culturally based expectations, and discuss and negotiate mutually satisfactory goals for academics and behavior. Through such meetings, teachers become critical socializing agents for parents, and teachers learn the valuable resource provided by the parents who offer insights about their students.

Compared with U.S. teachers, Korean teachers hold a much more important social position in society, and thus parents show great respect for them. In such a context, teachers have the authority to make decisions for students' academic development. They inform students' parents about decisions and seek parental support. In America, however, American parents typically take a more active role in their children's educational decisions. In order to develop an effective partnership between American teachers and mothers of children from other countries and cultures, both teachers and parents need to *become familiar with how the cultures represented by their students define the roles of "teacher" and "parent."*

A critical key to making discussions effective between teachers and parents of linguistically different children is for teachers to *identify and then implement the communication strategies that are most effective for the family.* Teachers should pay careful attention to the needs, skills, and comfort level of their students' families to different communication methods, technologies, and forums. Although a fairly

new trend, email emerged as a popular method of communicating for the Korean mothers and American teachers in this study, a method that may prove to be highly effective for facilitating at least some contact between teachers and parents who are non-native English speakers. Although email may be an effective tool in helping overcome some communication difficulties, because many non-native English speakers read and write English with more confidence than they speak it, it was clear from the interviews that email should not replace all face-to-face or personal contact between parents and teachers. Both teachers and parents indicated that they still appreciated and felt a need for personal, human contact with one another, even if it was only in informal situations.

Finally, parents and students who are non-native English speakers, especially those who are new to this country, need to be sensitive to American culture. Most of the Korean mothers interviewed mentioned that it would be helpful to them if other Koreans in the community would have seminars or meetings for the newer Korean parents and students. *Facilitate discussions among new families from one culture or country and those who have been in the school or country for a longer period so that new families can learn about the cultural norms and expectations in U.S. schools.* In such meetings, those who have experienced the American school system could explain their experiences and understanding and give practical advice.

Conclusion

Teachers can no longer rely on either their own cultural background or their limited experiences with people who are different from them to know how to effectively teach and reach the diverse students represented in their classes. The level of understanding required does not come from reading stereotyped accounts of other peoples and other lands or from taking a tourist approach to understanding other cultures:

> Well...there are six Korean students in my class, but I have not researched the culture, history, or educational system of Korea. But we do have international day at our school, so I do know a little about Korea. (American Teacher D)

Although "international days" and other snapshot approaches to learning about other cultures may help us broaden our understanding of cultural differences and worldwide perspectives somewhat, the most important information about students' individual natures and cultural backgrounds can best be obtained from students' parents. It is only through talking with our students' parents, both formally and informally, finding ways to work around or break down barriers to communication and being truly sensitive to other's cultures, and to facilitate understanding and cultural sensitivity that we can truly learn to provide the care and education that meets the needs of all of the individual children and families with whom we work.

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Author Information

Heayoung Yang is a graduate student at Indiana University in Bloomington. Her major is early childhood education curriculum studies, and her minor is art education. She has been actively involved with the teaching of young children in community-based programs. She is interested in teacher preparation for culturally appropriate practice. Her current research focuses on children's visual literacy, children's art and pedagogy, and children's visual culture and its influence on children's social and emotional development.

Heayoung Yang
Email: heayang@indiana.edu

Mary B. McMullen, Ph.D., is an associate professor of early childhood education at Indiana University in Bloomington. She received her B.S. degree in physical sciences at Michigan State University and her M.S. and Ph.D. degrees in child development from Florida State University (1992). Her primary research interests include the psychological, background, and contextual factors that influence teachers' beliefs and practices in preschool through primary grades, international perspectives on definitions of quality and the resulting recommended practices, and contributors to high-quality infant/toddler care and education.

Mary B. McMullen, Ph.D.
Indiana University
Department of Curriculum and Instruction
School of Education, Room 3256
201 N. Rose Avenue
Bloomington, IN 47405-1006
Telephone: 812-856-8196 (office)
Email: mmcmulle@indiana.edu
Internet: http://www.Indiana.edu/~ectesite

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Preschool Teachers' Play Experiences Then and Now

Anette Sandberg
Malardalens University

Ingrid Pramling Samuelsson
Göteborg University

Abstract

Many preschool teachers recognize the importance of play for children's development and learning and emphasize play in their classrooms. This paper explores how they remember their own childhood play and how they perceive children's play today. Twenty Swedish preschool teachers were interviewed regarding their views of play. Two characteristic perspectives were identified—the idealized and the pragmatic. Findings suggest that the idealized perspective was more common than the pragmatic among the preschool teachers interviewed. Two different themes from childhood stand out as significant in the comparison of play in the past to the role of play today: time for play and the effect of media on play.

Introduction

For many people in the world, especially in Western societies, childhood is closely related to play (Woodhead, 1996). The United Nations Convention on the Rights of the Child (http://www.unicef.org/crc/crc.htm) suggests that there is collective agreement about the value of play for young children, stating that a child should not have to work but should have opportunities for play and leisure activities.

In the context of preschool education, the importance of play is generally accepted. Although theories of children's learning have changed throughout history, in most theories, play is viewed as an act of learning or as an object of learning (i.e., play means something by itself and therefore is of value for children's well-being) (Pramling Samuelsson & Asplund-Carlsson, 2003). Play in preschools has been called "free play" to emphasize that children's role-play is partly free from the teachers' planning and involvement. This view is based on a maturity perspective of child development, where "the natural child" is seen as being nourished by his or her own creativity in play (Bruner, 1996). Maturation is viewed as the basis for children's learning (Sommer, 1997).

The new preschool curriculum in Sweden today does not separate play and learning activities, as was the case previously (Ministry of Education, 1998); instead, the new preschool curriculum integrates play and learning. Play is viewed as necessary for children to make sense of the surrounding world. This new perspective on play and learning represents a paradigm shift. Many of the words used to characterize

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play—for example, joyful, free, spontaneous, symbolic, social, and engaging—are now used to describe productive learning situations in both preschools and schools (Pramling Samuelsson, 1998).

That the view of play and learning has changed in official documents is an established fact, but what does this change mean for preschool teachers? Preschool teachers study theories of play in their teacher education courses, but many Swedish preschools do not get high scores from pedagogues (Sheridan, 2001a; Sheridan, 2001b) when quality is evaluated with the Early Childhood Environment Rating Scale (ECERS) (Harmes & Clifford, 1980). A high score on this questionnaire means that the preschool has substantial and varied equipment and attributes for role-play, that play themes can continue over a long period of time, and that teachers are taking an active part in the creation and development of play.

The goal of the study described in this paper was to investigate, identify, and describe different ways that preschool teachers view play. The following assumptions guided this study:

- Play is important for young children, globally as well as nationally.
- All Swedish preschool teachers have played during their own childhoods and studied theories of play during their teacher education at the university level.
- Play is still not well developed in preschool, according to evaluations by ECERS, although it is heavily emphasized in the curriculum.
- The understanding of the significance of play today and descriptions of play could be increased by preschool teachers' examining their experience of play in their own childhoods.

These four starting points lead us to the research question: How do preschool teachers remember their own childhood play experiences, and how do they perceive children's play today?

Play and Childhood

Play

Many researchers within, for example, the fields of psychology, sociology, anthropology, and pedagogy have been fascinated by the significance of play in childhood. Despite this interest, they have not been able to agree on a definition. For the purposes of this paper, however, it might not be essential to define play; instead, we can state that children express play in many different ways and that adults interpret what play is in many different ways. We can simply assume that all preschool teachers have an implicit or explicit picture of what play is.

Childhood

What meaning do we ascribe to the concept of childhood? There are many different perspectives on childhood—sociological, psychological, anthropological, and cultural. From a psychoanalytic perspective, Crafoord (1996) speaks about a childhood that is transformed into a personal myth and childhood events that become legends. According to Kristjánsson (1995), adults create their ideal image of their childhood. He claims that adults have unconscious assumptions rather than an objective visual picture of their own childhood. He reasons that adults, as they develop intellectual skills, overestimate and misrepresent some memories. Furthermore, adults have been influenced by religious, political, and philosophical ideas during the years when they were growing up. As a result of these factors, the childhoods that adults remember are no longer the same childhoods that they really had. Their reactions therefore are exaggerated when it comes to seeing changes concerning the way in which children grow today. Kristjánsson (1995) also states that adults' fear of change is greatest when it comes to the family, and they are therefore unable to recognize that family and childhood have always been influenced by the continuing development of society.

Halldén (2001) states that one's childhood is constructed in the moment one talks about it. From this perspective, it follows that when preschool teachers talk about their childhood, they construct their childhood. She also says, "we will understand reality through the stories about reality, which we create by

ourselves. Through stories built upon memories, both memories and history are created" (Halldén, 2001, p. 13, authors' translation).

How we interpret experiences from our childhood depends on what theoretical perspective we use. Many agree that childhood is important to an individual's development, and that we are influenced by everything that we have done—for example, which play experiences we have had. Although the past cannot be changed, we can influence our conceptions of the meaning of our earlier experiences through knowledge and by the changing of attitudes. Thus, it can be of interest to find out how preschool teachers talk about their own childhood play and how they view the children's play that they encounter in their classrooms.

Method

This study focused on preschool teachers' conceptions of play. The study was qualitative and inspired by the phenomenographical research tradition. The purpose was to identify and describe different ways that people conceive, understand, and experience phenomena in the world around them. By characterizing the meaning of preschool teachers' statements, this study investigated the implication of play "then and now." Variations in conceptions were the focus of the study (Marton, 1981, 1994; Pramling, 1983, 1988, 1994; Larsson, 1986; Alexandersson, 1994; Marton & Pang, 1999; Marton & Booth, 2000). The important part of the analysis was the comparison of interviewees' statements in order to find both similarities and differences in the ways people think or learn something (Marton, 1981, 1994; Marton & Booth, 2000; Pramling, 1988, 1994; Pramling Samuelsson, 1989; Larsson, 1986). The complete interview was the starting point for the interpretation and analysis, and it resulted in descriptive categories. The individuals were separated from the descriptive categories (Marton, 1981, 1994; Marton & Booth, 2000; Alexandersson, 1994); therefore, one person's comments could be assigned to several different categories.

Sample

Interviews were conducted with 20 preschool teachers. The subjects interviewed for this study held different views about play so that there was variation within the group. By doing the selection from conscious criteria, purposeful sampling (Patton, 1990) and theoretical sampling (Marton & Booth, 2000) have been used. The selection process assumed variation regarding gender, age, childhood environment, siblings, own children, years of education, and work within municipal and private preschools, respectively. The advantages of this varied sample were that it allowed both extensive and comprehensive descriptions as well as maximum variation.

Interviews

The participants were contacted at the preschool teachers' workplaces with an initial call to see if they would participate. During this call, a presentation of the purpose of the study and the interview was made, and time and location for the interview were decided. Partly structured interviews were performed at the preschool teachers' workplaces. Every interview started with a description of the purpose of the study and a description of ethical rules used for research, including confidentiality, consent, information, and autonomy. Researchers also emphasized that participation in the study was voluntary (HSFR, 1999).

Using the purpose of the study as a starting point, interviewers asked the preschool teachers to speak about the following areas: memories of play experiences from their childhood, their perceptions of children's play today in preschools and in homes compared with their own experiences, and their approach to children's play in their classrooms. These questions constituted the basis for further conversation and made possible deeper discussions about play. In order to find out about the preschool teachers' perspectives, interviewers encouraged teachers to speak freely about their experiences. The interviews, which lasted between 45 and 90 minutes, were tape recorded and transcribed.

Analysis

The procedure used during the analysis was inspired by the phenomenographical research tradition. First, each interview transcript was read repeatedly in order to get an overall impression and an understanding of the implication of the statements that were made. This approach resulted in a general picture of the material and highlighted some common features.

Next, an analysis of each interview was completed, including analyses of both the interviews as a whole as well as of the details of each. A data reduction was performed; that is, all quotations with expressions of opinion based on the question "How do preschool teachers experience their own childhood play, and how do they experience children's play of today?" were selected. The teachers' statements constitute the categories alluded to henceforth. Thus, different meanings from the teachers' statements were analyzed in order to attain the main categories. Based on an analysis of the content, the statements that dealt with the same meaning were collected in the same category and named. Each perspective of conceptions is described in the results (Larsson, 1986). In this analysis, a large number of significant statements appeared.

Third, the contents of the significant statements were then grouped for the total sample into "meaning units" that were, in turn, assembled into two superordinate themes.

Fourth, we studied the similarities and differences with regard to these meaning units in each superordinate theme-producing category. Hence, it is these units that constitute the focus of this article—preschool teachers' ways of experiencing play and its variations.

Validity, Reliability, and Generalization

Within phenomenography, validity and reliability describe to what extent the categories of conceptions correspond to the participants' conceptions. Our starting point has been that the preschool teachers described their experiences in order to create an understanding of play in childhood. Reliability, carefulness, and validity are supported by two criteria: the categories are illustrated with quotations from the interviews, and a co-examiner insured that the categories corresponded to the statements in the interviews (Larsson, 1986; Alexandersson, 1994). This approach implies that in this study quotations had two meanings—to illustrate the results and to give the reader a chance to judge the reasonableness of the interpretation. In this study, both authors, independently of each other, analyzed the interviews. Preliminary results from the study were also discussed with other researchers.

Alexandersson (1994) emphasizes that generalization in the phenomenographical tradition means that the phenomenon shall fulfill as many qualities as possible. Following this tradition, the present study has a variation range in the selection of the material (see discussion of sampling strategy). Strategic considerations were made during the selection of preschool teachers in order to identify qualitatively different experiences. These considerations were made from the conception that the context in which one exists is of importance to the experiences one has.

Results

On a general analysis level, it became obvious that the preschool teachers described their own childhood play as being exceptionally gender stereotyped. The men described how as boys they engaged in rule-based play (e.g., football, ice hockey, hunting), while the women described how as girls they engaged in role-play (e.g., playing with dolls, keeping store, and playing with horses). Some of the men and some of the women described a "secret" play world, something that occurred outside the adult visible world. All of the preschool teachers in the study shared the view that outdoor play was much more common in their own childhoods than it is for children today and put great emphasis on that fact.

The analysis of the interviews with the preschool teachers also showed great variation in conceptions with regard to their own childhood play and children's play today. These two different conceptions

characterizing the preschool teachers' views have been labeled "the idealized" and "the pragmatic" perspectives.

The Idealized View

Preschool teachers who held this view said that ideal play was their own play from childhood. They related play to "the child as nature" (Dahlberg & Lenz-Taguchi, 1994; Lenz-Taguchi, 1997). In this view, play is perceived as an expression of children's inherent need to express themselves through play—something that is natural and needing an outlet. The interviewed preschool teachers tended to concentrate on circumstances that pointed out that play is not the same today, and they used their own childhoods as a norm for what should be seen as natural. They often focused on external conditions for play, such as large groups of children and shortages of staff, as reasons for the shortcomings in today's play. They perceived changes in society (e.g., watching TV and using computers) as dangerous. They also claimed that one way to develop children's play is to limit the children's use of toys in preschool. Implicitly, they expressed that children's play used to be better in those days when children did not have as many toys as they do today, because they believed toys prevented children's natural fantasy:

> We just don't take out that many toys.... There are buckets, spades, and toy cars. If they don't want to play with these, they just make up their own games and play around the bushes. (Male preschool teacher with an idealized perspective)

Similarities could be seen here between this perspective and a Piagetian perspective, in which play is described as having a biological foundation, within which children play in ways that are typical or necessary for a specific age. Children assimilate their experiences to a level or a way of being and thinking that corresponds to their age. There is something, given by nature, for each age that is general and stable and that transcends both culture and time (Piaget, 1962). By letting children have experiences that are appropriate to their age, they can be expected to reach the next developmental level.

The Pragmatic View

The teachers who expressed a more pragmatic conception of play believed that children's play today is no different from the kind of play that they engaged in when they were children. They regarded children's play as an expression of culture, something that is constituted and created within the culture and therefore appears differently in different periods of time and in different societies. Preschool teachers who held this view recognized themselves in the children's games. They reflected upon themselves and exhibited a better understanding and awareness of the impact that play has on children's development. Furthermore, they were open to new perspectives.

Similarities could be seen here between the pragmatic thoughts of the preschool teachers and the ones of Vygotsky. Vygotsky (1978) stresses the importance of children's creation and play. Play is regarded as interpretations of the situations of everyday life. In play, children interpret their experiences and give them life. By dramatizing, they transform and exaggerate their experiences by bringing out what is typical. Imitation is of great importance in children's play. In play, children tell a story, and play and story telling are closely related. Vygotsky ([1930] 1990; 1995) emphasizes that children's play often serves as a reenactment of what they have seen and heard from adults; however, in play, the child processes these experiences creatively. These impressions are combined, and a new reality, which corresponds to the children's own needs and interests, is created. Vygotsky (([1930] 1990; 1995) also points out that the cultural reality children live in influences them. He stresses that humans always are children of their own time and environment. The motive and the core of play are the same, but the external conditions separate play in earlier times from today's play.

Similarities and differences stand out when it comes to how preschool teachers see today's play in the light of their own childhood. Above all, one can say that the pictures are not complete; the same person can give expression for both an idealization and at the same time be pragmatic, even if there are examples of more complete perspectives among the interviewed preschool teachers. What is worth noticing is that an

idealized perspective is more common among the teachers.

Figure 1 illustrates the two themes that stand out as significant in preschool teachers' play experiences: time for play and the role of media. These themes and some categories will be described in the light of the idealized and pragmatic perspectives. In Figure 1, the themes and categories are summarized, and they are further developed in the following sections.

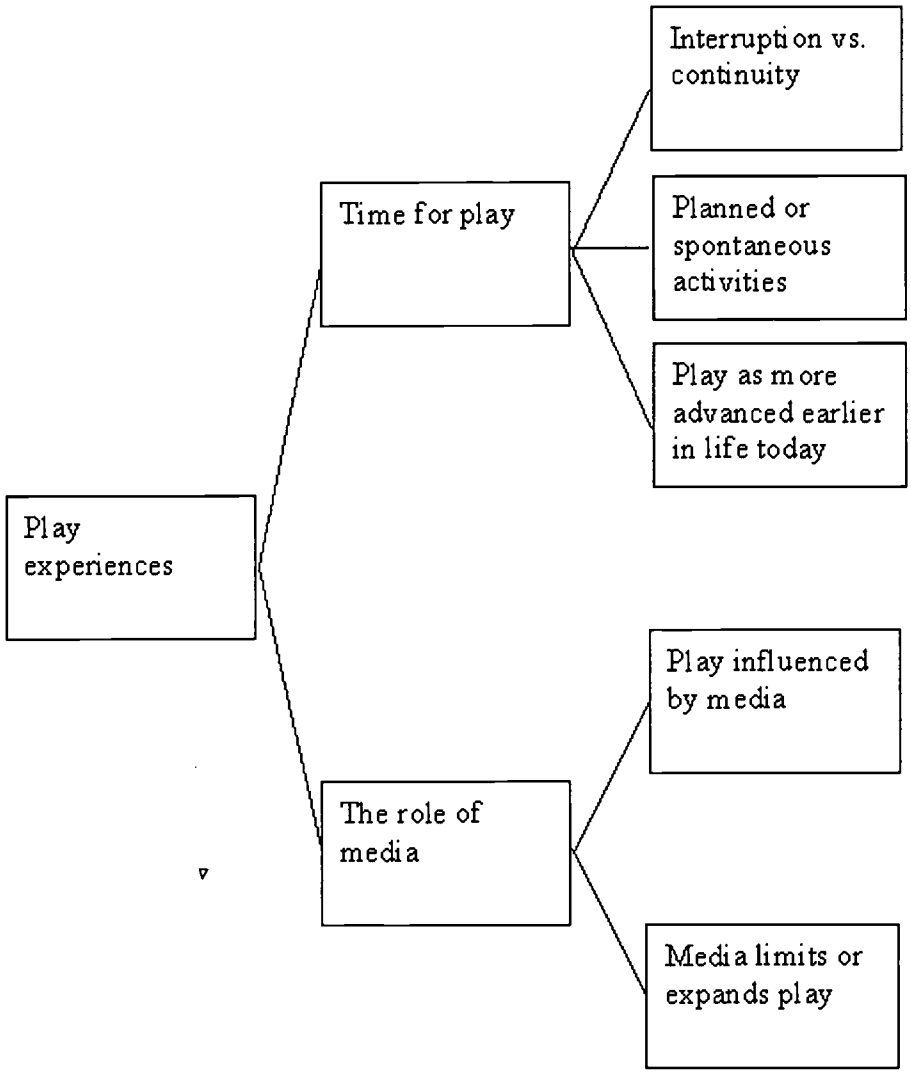

Figure 1. Categories of play common to all participants.

Time for Play

In the preschool teachers' statements, the theme "time for play" is expressed as three different categories. In all these, the time becomes related to different external factors, which influence children's play today in different ways. The different categories are (1) interruption versus continuity, (2) planned or spontaneous activities, and (3) more advanced play earlier in life than in the past. These categories are to some extent linked to each other, but even so, the preschool teachers focus on different categories.

Interruption versus Continuity

In this category, it is emphasized that it is the preschool organization that often causes interruptions during time used for play. These interruptions are caused by routines that both the preschool teachers with an idealized perspective and some teachers with a more pragmatic perspective emphasized. Almost all preschool teachers claimed that they used to have time to finish their play when they were children. Many of them also claimed that they often engaged in the same play for several days:

> It is the aspect of time.... What I remember, we had all the time in the world to play. One remembers the very long days; there was nothing that stressed, such as going away for other activities. An exception was lunch when grandmother shouted that one should come and eat, and when there were snacks between meals. I had no activities that I remember, maybe swimming or something in the evenings. (Female preschool teacher with an idealized perspective)

As we can see, this teacher focused on the continuity, but we can also see that she is comparing her childhood to that of today's children, who live very structured lives (see also next category).

One of the female preschool teachers with a pragmatic perspective said that her own experiences of play had influenced her view of play, because she had time to play without interruption in her childhood:

> Teacher: I had the time to play since my mother was a housewife so one had the entire day to oneself and there were no early mornings. I had the time to play, and based on that, I think it is important that children have time to play even if they are here and not at home.
>
> Interviewer: Yes, what do you do to give them that time?
>
> Teacher: One thing is that we try to plan the day in such a way that we have a longer period of time during which they have time to start up something. Then the most important thing is to have several longer periods during the day when they can continue. (Female preschool teacher with a pragmatic perspective)

This teacher explained that her experience of continuous play from her childhood made her deliberately plan the days at preschool in order to allow for fewer interruptions during the time that is set aside for children's play.

In these two examples, we see how the teachers agree on a memory of continuity in play from their own childhood, although in the first example, the teacher related her expression to the fact that children are involved in too many activities today (a more negative view), while the other teacher tried to arrange continuity for the children at her preschool (a more positive view).

Some of the preschool teachers who had the idealized perspective emphasized that the children disturb each other during play and that interruptions occur all the time, due to the coordination with other activities in the preschool:

> In my opinion, children do not play anymore; they do not have the opportunity to play the same thing for long, so it becomes ever so short. Maybe they play for 15 or 10 minutes with the same thing, then they are interrupted or disturbed. When there are many children, more and more children come and want to take part, and you are disturbed. (Female preschool teacher with an idealized perspective)

Some of the preschool teachers, however, tried to arrange for continuity:

> We think that they learn so much from play, so we give them time to play, not steering the activities all the time. We have tried to plan assembly and story time [so that children]...do not have to interrupt their play in order to tidy up. (Female preschool teacher with a pragmatic perspective)

As we can see from the above, some teachers thought children have restricted play opportunities, and the cause is very much intertwined with the way in which preschool activities are organized and the fact that there are too many children grouped together for play. In the first example above, we can see how the external prerequisites become an obstacle to a natural way to play, while in the second example, the external prerequisites are changed in order to support children's play. In this category, we also notice that the teachers said that today's children do not often play the same game for long. These are all the result of the children's environment, and this situation is deemed to be wrong—because children need continuity in order to be able to play the kind of games they prefer. Both the preschool teachers with an idealized perspective and those with a pragmatic perspective expressed this view, but those with a pragmatic perspective seem to do something about the situation. On the other hand, the teachers also gave examples from their own childhood of when a larger group of children played together:

> Then, we were very many children who sometimes, some evenings got together and actually could play together, everybody in our block could come together, doing such things that I never have seen today. There were games such as The Red and White Rose, and that was exciting because we were all of many different ages. Those who we didn't use to be together with that much, there were some older boys. X and his friends, who probably were five or six years older than us were leading the game. In those times, everybody in our block were together, we had the whole block as a playground, we sneaked around the backyards and the bushes, it was so exciting that sometimes, I recall, I had to go up to the apartment just to relax and hide. (Male preschool teacher with an idealized perspective)

> Well, I can see it here in the area, in the evenings, there are quite a lot of children from primary and secondary school, and there they play some thrilling mischievous games, probably right on the border to what is allowed, boys and girls; it could be something like The Red and the White Rose and similar games, they run around in gangs like that, here in this area anyhow. I've seen that. That's great fun, one remembers, actually, yes... (Male preschool teacher with a pragmatic perspective)

The preschool teacher who had the idealized perspective suggested that many children used to play together in the area, while the preschool teacher who had the pragmatic perspective believed that children do so even today. Some of the preschool teachers who had the pragmatic perspective noted that there are advantages for children who attend preschool, because it gives them opportunities to play with many different children:

> They have more children to turn to here in preschool; if one friend doesn't suit them, they can play with some other, or there is an adult.... There is a greater choice ... more children, so the opportunities I think children have, I mean, more children have the right to good play and to get time to play, within preschool anyway, are greater now than when I was a child. (Male preschool teacher with a pragmatic perspective)

The fact that many children play together is seen both as something positive and something negative. The playing of spontaneous outdoor games is regarded as something quite natural. However, the preschool teachers who idealized their own childhood considered the large group to be a problem when large groups of children played together indoors. The teachers who had the pragmatic perspective, on the other hand, had a more positive view in this respect.

Planned or Spontaneous Activities

The most apparent thing in this category is that both preschool teachers who had a pragmatic perspective and teachers who had an idealized perspective thought that time often is controlled by activities and that parents feel that children must be active at all times, even during their leisure time:

> I wish that I had some more peace, so that I do not feel so scattered. Parents think that something must happen all of the time, otherwise you are a bad parent. I strongly believe that one must have time to play, to have the time to start play. I believe some children think that there is no point in starting playing because they are interrupted all the time with sports

> or something else. I think that this free time, to go around and do nothing, is a big difference compared to when I was a child. How do you know when you have fun, if you are not bored once in a while? What I remember from my childhood is that Saturdays and Sundays were boring. On Sundays, we were expected to not play but be dressed up and go to one's grandmother for coffee and then visit the Sunday school. I had no brothers or sisters, so I often sat and looked out of the window since TV did not exist. I think that children today cannot stand to be bored, because then their parents think that there is something wrong. I think this is what is lacking, just this, I think it is an advantage to be a little bored sometimes. (Female preschool teacher with an idealized perspective)

This view indicates that children do not have the same amount of time for play today, because they have more activities on both weekdays and weekends. When the preschool teachers grew up, play was more spontaneous, and organized activities were rare. This view implies that they could play for longer periods of time, which was the focus in the category presented earlier. The difference this time is that this category focuses on the activities as such. However, in both cases, the interviewed teachers' interpretations of these circumstances result in the same assumption—that today's children cannot exercise their own natural play, because doing so seems to be something that presupposes a longer period of time.

Teachers also connected the planned activities to more stress in society in general, which they believe is reflected in children's play. Both preschool teachers who had the pragmatic perspective and teachers who had the idealized perspective pointed out that parents are more stressed today because both parents work, and they work longer days compared with their parents when they were children. The preceding statement is puzzling because working hours have decreased officially. The teachers perceive that children have been influenced by parents' hectic lives. Characteristic of this category is that both preschool teachers who had the pragmatic perspective and teachers who had the idealized perspective emphasized that they remembered their childhood years as more peaceful and less stressful. Today, they believe, children are active the entire day:

> Then one fills these holes with TV and there are activities all the time, and all the time is passive. In reality, it is passive, but something has to move all the time, and it must move in front of your eyes; it is never quiet. I think this stresses the children.... One thing that we have here in our preschool is that when they have played for a whole day, or been here a whole day, most of them bring a pal home after preschool. This is something that we have noticed the last couple of years. We wonder if they have enough energy for this, and if the parents have enough energy for it, but by taking a friend with you home, you fill the hole between getting home and dinnertime. The children will never have time to ease off, so this does not only have advantages. (Female preschool teacher with an idealized perspective)

Here we can see that the preschool teacher thinks that the children's activities steer their lives in a stressful way. Children are a part of society, but it is not natural for them to live with this stress. What she appears to regard as natural for children is a much more spontaneous and unplanned life.

Play as More Advanced Earlier in Life Today

In this category, teachers perceived that children play during a shorter period in life. Something else worth noting is that the interviewees recalled playing more than today's children. Some preschool teachers who had the idealized perspective perceived that children today start playing some games earlier in life, for example, games such as cowboys and Indians. This change can either be viewed as something negative, as many of the preschool teachers who had the idealized perspective thought, or as something positive, as those who had the pragmatic perspective thought:

> I think it has changed quite a lot. I think that a lot of the games that we played then, if you can compare the way we played Indians and cowboys. I think such games come in at an earlier stage nowadays. From what I can recall, we did not play that type of game that early; it is maybe due to TV and things they see.... As I remember, we were 6, 7, 8 years old before we began playing that way, before that we were not influenced by such violence, yes, what is it called? I think that TV is affecting quite a lot after all, because the children's

> programs we used to watch were very pedagogical. You never got in contact with such things as Kimmon, Turtles, and others that actually are a type of fighting game. Therefore I claim that it comes earlier; I cannot remember that I played such games when I was 3 or 4 years old. Programs like Batman and Zorro did not exist, so you played more peaceful games. (Male preschool teacher with an idealized perspective)

This preschool teacher seems to have a negative image of how TV makes children play more violent games. He believes also that this sort of exposure starts much earlier today than in the past. The preschool teachers who had the idealized perspective said that children stop playing at a much younger age today. They attribute this change to TV, computers, and leisure activities. They believe that children move into the adult world earlier today and interpret this situation as negative for children. The preschool teachers seem to agree that this situation threatens the children's healthy development because the natural thing would be for them to play longer. Thus, they blame today's culture, which they believe does not facilitate natural play:

> I think about all that jump skipping-rope and twisting that we did in school. What you see today is that the children that jump skipping-rope and twist at the school in X are about 6 years old. This has changed a lot, because we were 10, 11, 12 years when we did that. We played with Barbie dolls when we were 10 years old, but I do not think a lot of 10-year-olds play with them nowadays. I think this is a big change, and today they are given Barbie dolls when they are 3 years old. Today, you have dollhouses when you are 2 years old and Barbie dolls when you are 3 years old, and it is amazing that the ages have lowered so much for things like this. Today, you start with make-up when you are 10 to 12 years old and that is early compared to when we started. It is a big thing that has happened, and I think it is very much due to us adults, because a 3-year-old does not buy a Barbie doll for her friend as a birthday present. (Female preschool teacher with a pragmatic perspective)

The above illustrates that many teachers feel that expectations for children have changed. According to the interviewees, it is the adults, both preschool teachers and parents, who indirectly have caused the reduced playtime for children.

The following shows another dimension—teachers claim that when they were children, children were given greater responsibility early in life. All sports and games took place without the involvement of adults or leaders:

> We made up sides without adult interference, and so we started the sport in the playground and played matches and so on. There was nobody telling us that now you are in this team or that team. But today, you don't see one single kid in the playground I used to grow up with, because today they go to special training activities where the adults lead them all the time. That makes me believe, one cannot generalize, but I think that partly this is reflected in other play as well. (Male preschool teacher with an idealized perspective)

According to the teachers interviewed, playing outdoors gave a feeling of freedom, a freedom from adult interference and a freedom to move around in the local area:

> We played pretty freely; we moved around in rather large areas, I think, but I was small.... We lived pretty free, when we were outside, we were pretty much on our own, actually. There were no adults out playing with us, that was quite a fostering I believe.... When we played freely with our pals outdoors, and it was freedom, we had spaces to move in, which we didn't have indoors.... We played among the bushes, and there was some woodland with stones—that was freedom. (Female preschool teacher with an idealized perspective)

Many teachers thought that in the past there were more quiet games indoors, as a consequence of the limited space in people's homes. Consequently, there were more outdoor games:

> What I remember most is that we stayed outdoors a lot. Well, if we stayed indoors, we

> mostly played quiet games, paper-dolls, but it was so cramped so I think that's why we preferred to be outdoors.... We were not allowed to run around indoors, or to be mischievous, or even bring many friends; if one was allowed to bring a friend, it was often just one.... There was no space for play, no private rooms, and not that many toys. I remember I had a cupboard in the kitchen where I kept my toys. We played much more lively games outdoors. (Female preschool teacher with an idealized perspective)

The Role of Media

Based on the preschool teachers' statements about children's play, it is obvious they believe that we live in a media-influenced society. Modern media and technology are highlighted both as inspirers and as something bad and hazardous to children's future. All of the interviewed preschool teachers seemed to agree that media influence the manner in which children play.

Play Influenced by Media

Both teachers with an idealized perspective and teachers with a pragmatic perspective noted that today's play is influenced by media in different ways, most notably when it comes to scary elements such as violence, which forces children to spend a lot of time discussing what they have seen and heard. When the preschool teachers were children, experiences of violence from TV and computer games were not an issue, because this kind of media did not exist:

> Teacher: Often they sort of get rid of what they have seen on TV by acting out in play; when I was a child, I did not watch TV that much, but one realizes that they do nowadays and that they play what they see a lot. They probably relieve themselves through play in a different way today.
>
> Interviewer: You didn't do that when you used to play?
>
> Teacher: Certainly, but I lived in sort of another reality; I probably didn't need to work through the TV violence as they do today; the games that children play these days are somewhat tougher. (Female preschool teacher with a pragmatic perspective)

A distinction between the pragmatic and the idealized perspectives became apparent. The preschool teachers who had the idealized perspective felt commercial influence had a negative effect on children's play (e.g., Disney selling movie characters as toys). The preschool teachers who had the pragmatic perspective argued that children get inspiration from the movie characters and that they, for example, do their own versions of these characters:

> When I was young, we were inspired by comic books and such things, there was not really any inspiration directly from TV.... Today, it is totally different. A lot of other sources of inspiration are available, through TV, toyshops, and McDonalds' games, which all exert an enormous influence, and all children are aware of all those sources of inspiration. When I was young, we had "Televinken," and we did not ask others about it because not all of us had a TV, so it was completely different. I must say that today's situation also has some positive aspects. You cannot stop the development of society, and there are some powerful commercial forces.... Despite this, children develop variations on different subjects. They can play Batman and Spiderman, but still it is "I am daddy Batman and you are mummy Batman." It becomes the same play as when we were young, but the setting is different. I think the contents in a role-play have not changed much, especially when it comes to relational problems, to move all the gadgets and collect things are some things which have not changed much over the years. They may use different names and might be a little different, but the basics and the meaning of role-play, and also the structure and other things, I think this is all fairly identical. (Male preschool teacher with a pragmatic perspective)

Some preschool teachers also expressed a view that media have positive effects on children's play. Some of the preschool teachers with a pragmatic perspective saw computer and TV games as positive because they encourage cooperation:

> We have considered that from a social perspective it inspires contacts that would not have been made otherwise, so we have seen that several of them have come to know each other. They never would have chosen to play with that person otherwise, but now they have made that contact because that is what is appealing to them. Thereafter, they have also been able to find each other during the day. (Female preschool teacher with a pragmatic perspective)

Media Limits or Expands Play

There were some similarities in this category between the preschool teachers with idealized perspectives and teachers with pragmatic perspectives of how media limits children's play. For example, both groups stressed that outdoor play and physical play are limited because children are indoors more often than in the past and play computer and TV games.

The difference between the preschool teachers in this category was that only the preschool teachers who had the idealized perspective stated that children do not use their imaginations. A female preschool teacher argued that children are restricted in their fantasy play because of the influence of media:

> I think today's children lack freedom; they do not have the same fantasy. You hardly ever hear children fantasize over such free fantasies. It is controlled in some way by what they can see on TV, tied to some rules of how to play. (Female preschool teacher with an idealized perspective)

The preschool teachers seem to look at media as an obstacle that has created children's lack of fantasy and, furthermore, as an obstacle to children being physically active.

Many of the teachers believed that through media children develop their knowledge about letters and mathematical thinking:

> Teacher: Well, there are a lot of media and computers around us, so I think they learn from that too. I'm absolutely not against that, in any way, quite the contrary.
>
> Interviewer: What do they learn?
>
> Teacher: They can learn letters and mathematical thinking and colors and all sorts of things.... And then I believe that it is useful, there is more and more of it in society so, but as I said, sparingly, it's important to be outdoors too. The best kind of play takes place outdoors. (Female preschool teacher with a pragmatic perspective)

Discussion

From what point of view do the preschool teachers regard play today? Is it principally from experiences from their childhood? Halldén (2001) highlights the importance of discussing one's childhood. To the question: "How do you think that your own experiences of play have influenced you?" one of the female preschool teachers in the study emphasized:

> I have not thought about that earlier, but before I came to this interview I gave it a lot of thought and it has influenced me more than I have understood. (Female preschool teacher with an idealized perspective)

It is astonishing that educated preschool teachers have not thought about the relationship between their own childhood experiences and how they think about children's childhood experiences today. Their lack of reflection maybe the reason so many of them idealized their own childhood. The more teachers idealized their own play experiences, the more negative they were to the manner in which children play today.

What changes can be seen in play according to the preschool teachers in this study? In general, both the preschool teachers who had an idealized perspective and teachers who had a pragmatic perspective said that outdoor play has declined in both quantity and quality. They view this decline as due to children's lack of time for free play, too many interruptions and organized activities, and media's influence. Evans (1995) claims that more research is necessary to determine whether "children play less or play differently today" (p. 17). His thoughts are that television and organized activities influence play. This view corresponds to the results found in this study. Evans talks about television, although in this study, the teachers also refer to computer and TV games. The preschool teachers interviewed also pointed out that even the kind of organized activities that are arranged by parents and siblings have limited children's time for play:

> ...even parents do things during their leisure time. Now we hate to go home and have dinner, because then mummy has to go away to this and that. (Female preschool teacher with an idealized perspective)

Another prominent finding of our study is that teachers perceived that children today spent shorter time outdoors than teachers did as children. In studies by Sandberg (2001; in press) and Tammemäe-Orr and Sandberg (2002), adults predominantly drew outdoor environments when they were asked to illustrate play memories from their childhood. What is confusing about this perspective is that the children they talk about are their own children in preschool, and if there is something that Swedish preschools are known for, it is that they take children outdoors no matter what the weather conditions. Why is outdoor play so important for Swedish preschool teachers? Probably because of the shared assumption that children become healthier the more time they spend outdoors. On the other hand, many children live in cities, which are very polluted.

As we also noticed in the results, many teachers talked about a secret play world. Scientists (Cooper Marcus, 1978, 1992; Hart, 1979; Dovey, 1990; Sobel, 1990, 1993; Francis, 1995) are of the opinion that secret places are dominating features of childhood environments. In Sandberg's article (in press), one can find that the woods are experienced as a secret place up to age 18. A question that could be asked is how do children today get access to the woods, when teachers point out that today there are a lot of interruptions during play and many routines that disturb play. A secret play world is "best" when left undisturbed. There must be a balance between preschool routines and children's opportunities for play. Preschool teachers are role models for children; what teachers do and say as well as their attitudes influence them. We agree with Bardy (1999) that childhood always has to be rediscovered. This reflection should be done out of consideration for the children and also in order to increase our understanding of human beings.

Sommer (1997) notes that there have been changes in society and that new norms have developed. The difference between preschool teachers who had a pragmatic perspective and teachers who had an idealized perspective is that those with a pragmatic perspective are open to new perspectives when it comes to technical development and do not regard such development as something that limits children's play. One possible explanation for this view could be that the preschool teachers with a pragmatic perspective were the youngest teachers in the study. The teachers who had the pragmatic perspective see children as co-creators of culture and knowledge, and themselves as co-constructors of culture and knowledge (Dahlberg & Lenz-Taguchi, 1994; Lenz-Taguchi, 1997). Even though they stated that media cause commercial influence, they find such influence positive, because the children invent their own variations of the characters. They start from the children's own world and are aware of the great importance of children's need to learn new technology.

In contrast, the preschool teachers who had an idealized perspective see children as part of nature. They believe that children must be protected from the influence of the media and that children do not use their imaginations because of the media. Their view of the media is negative, and they believe that preschool teachers cannot protect children from computers and the new knowledge society. Are the preschool teachers expressing prejudice against parents, or are they reflecting their own experience with their children

at home? Earlier, there were no TV programs during the day, not as many TV channels, and not as many TV games, which also implies that children in the past did not get as much inspiration from TV as they do today. However, there are not many preschools where they watch TV while in school, and computers are a recent phenomenon in Swedish preschools. If they have computers, there is normally just one per group, so the children cannot spend many minutes per day at the computer. Sandberg's study (2002) showed that even if children use the new technology, this use does not necessarily mean that time for play decreases. Instead, as Evans (1995) argues, it could be that other activities, for example, reading, have decreased in importance.

What do the preschool teachers' images of play mean for their everyday work with preschool children? Is it that the children's competence is not utilized? Some of the literature (see, for example, Ministry of Education, 1998) suggests that teachers start with the children and take their perspective; but this approach does not always work in reality (Sheridan, 2001b). During the 1990s, there were large reductions in the area of child care (larger groups of children and reductions in staff), which affected preschool teachers' work. There is less time for reflection these days:

> We are more or less deep-rooted here ... but this is really progress, when things are changing, when you start thinking like this. It is really this type of question that you are asking that should be asked all the time within the team, questioning. (Male preschool teacher with an idealized perspective)

How can play have such a central role in preschools and at the same time hardly be reflected upon by teachers? Results from this study suggest that the assumption that play has major importance in preschools is a myth. Its importance is something that is described in theory, but reality does not seem to reflect its importance:

> Sometimes one feels a bit guilty, if one just lets them play. (Female preschool teacher with an idealized perspective)

There must be a change of attitudes, so that play is considered to have pedagogical value. Sheridan and Pramling Samuelsson's (2001) study shows that children regard play as the most preferred activity in preschool.

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Author Information

Anette Sandberg, Ph.D., is a lecturer at Malardalens University, Sweden. She is also a research assistant at LEGO Learning Institute. Her research interests are in early childhood education, especially play, the experiences of preschool teachers from different areas, and early intervention.

Anette Sandberg, Ph.D.
Malardalens University
Department of Social Sciences
P.O. Box 883
SE-721 23 Vasteras
Sweden
Telephone: +46 21 10 14 04
Fax: +46 21 10 13 90
Email: anette.sandberg@mdh.se

Ingrid Pramling Samuelsson is a professor and coordinator for early childhood education at the Department of Education, Göteborg University, Sweden. She has a background as a preschool teacher and got the first chair in early childhood education in Sweden in 1996. Her research mainly deals with how children create meaning and make sense of different aspects of the surrounding world, in the context of preschool (day care and kindergarten). Another research interest is teachers' professional development. Professor Pramling Samuelsson has been consulted by the Ministry of Education, the National Agency for Education, and the Department of Social Welfare and Health concerning questions about children.

Ingrid Pramling Samuelsson, Professor
Göteborg University
Department of Education
P.O. Box 300
SE-405 30 Göteborg
Sweden
Telephone:+46 31 773 2461
Fax: +46 31 773 2391
Email: ingrid.pramling@ped.gu.se

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Applying an Analytic Writing Rubric to Children's Hypermedia "Narratives"

Michael Seth Mott & Cynthia Etsler
Purdue University Calumet

Deondra Drumgold
Bank Street College of Education School for Children

Abstract

In an effort designed to guide and improve the assessment of a newly developed writing environment, the reliability and developmental and concurrent validity of a previously validated rubric developed for pen-and-paper-created narratives, Writing What You Read (WWYR), was determined when applied to hypermedia-authored narratives of children in second and third grade. Children (n = 60) from four intact classrooms produced hypermedia narratives (text, audio, graphic, and video elements) over a 4-month period in a school-based computer laboratory. Raters (n = 5) with knowledge of the teaching of process writing and use of hypermedia software judged the hypermedia narrative productions. Raters judged all students' (n = 60) hypermedia narrative productions individually without resolving differences through discussion. Two analyses were used to determine reliability: percentages of agreement and Pearson correlations. Percentages of agreement for the WWYR rubric averaged across 10 pairs of raters found high percentages of agreement among raters (.70 for ±0 and .99 for ±1). Pearson correlations averaged across 10 pairs of raters found acceptable interrater reliability for four of the five subscales. For the five subscales (Theme, Character, Setting, Plot, and Communication), the r values were .59, .55, .49, .50, and .50, respectively. Developmental validity of the WWYR scores was examined with one-way MANOVA to evaluate the WWYR scores of children grouped as low, medium, or high ability based on their Iowa Test of Basic Skills (ITBS) National Percentile Rank for Literacy Skill. Evidence for the developmental validity of the WWYR scores was supported across the three ability groups, F (2, 36) = 2.59, p <. 01. Concurrent validity was examined through correlational analysis between students' mean WWYR score and ITBS score. Scores from the two measures were positively correlated, r = .83, p < .01, providing evidence of the sensitivity of the WWYR assessment to measure the developmental literacy competency of the third-grade students. Results support teachers' use of a validated rubric developed for pen-and-paper-created narratives applied to hypermedia narratives, despite additional visual and audio narrative elements inherent to hypermedia. Implications for literacy teaching and learning with hypermedia address core questions about the similarities and differences between written textual expression and visual and verbally recorded expression. A revised and expanded WWYR rubric is proposed to begin to address these core questions generated by teachers' use of the hypermedia writing environment.

Introduction

The very notion of "writing" is increasingly being transformed by new digital computer technologies in society, homes, businesses, and schools. Today, one's ability to represent thought electronically is more important than ever. The extreme pace of change in society dictates that early childhood educators

consider how to facilitate children in learning to express themselves digitally in computer environments in developmentally appropriate ways. This article addresses the curriculum, instruction, and assessment of children's written expression in hypermedia, a computer environment that supports text, audio, video, and graphics. The hypermedia curriculum and instruction are described, and a technical analysis of a proposed assessment is applied and discussed.

Emerging Trends

Prior research has addressed the reliability and validity of a narrative rubric useful for both teaching and learning (value) and large-scale (utility) literacy assessment. As literacy curriculum and instruction continue to transform to include new computer-based learning environments, researchers must correspondingly develop and technically evaluate assessments for the new environments. Hypermedia represents a powerful electronic environment through which literacy expression can be facilitated by the manipulation of text, graphics, audio, and video elements, and this technology and integration are reflected in the new literacy K-12 standards (IRA and NCTE, 2001). The qualities of hypermedia that support higher-level cognitive processes such as synthesis, organization, evaluation, and reflexivity have been well documented (Yang, 1996; Mott, Sumrall, & Hodges, 1997). However, there is a glaring absence of ways to reliably and validly assess students' hypermedia products. To address this absence, a narrative process writing curriculum and instruction environment was merged with hypermedia. These terms are defined as follows:

- Process writing curriculum and instruction: writing using discrete stages (brainstorming, drafting, conferencing, revising, editing, and publishing) administered via "mini-lessons" applied to address the needs of the individual writers in whole-group instruction. See Graves (1983) for a detailed description.
- Hypermedia: Hypermedia comprises two main components: (1) hyper: the ability to program electronic links, or hyperconnections, to connect information to any other Internet-based source or simply to link locally to a hard drive or diskette, and (2) media: the ability to manipulate multiple meaning-based symbol systems representing a variety of sources—text, graphics, audio, and video clips.

This article addresses the reliability and developmental and concurrent validity of a previously validated narrative writing rubric, Writing What You Read (WWYR) (Wolf & Gearhart, 1994; Novak, Herman, & Gearhart, 1996), applied to hypermedia narratives created by students in grades 2 and 3 (see Table 1). The technical qualities of the process-oriented classroom rubric, valuable for teaching and learning on a day-to-day basis, are linked to the utility of the narrative rubric for measuring elementary students' literacy competencies as identified via a validated large-scale instrument, the Iowa Test of Basic Skills—Literacy Competency. Thus, five main issues are addressed relating to rater judgments of elementary students' hypermedia narratives (stories with text, graphics, audio, and video elements authored using HyperStudio hypermedia software):

- Reliability of interrater judgments is examined using the WWYR of hypermedia narrative quality.
- Developmental validity of the WWYR scores is examined with one-way MANOVA used to evaluate the WWYR scores of students grouped as low, medium, or high ability based on their Iowa Test of Basic Skills (ITBS) National Percentile Rank for Literacy Skill.
- Concurrent validity is examined through correlational analysis of students' mean WWYR scores and ITBS scores.
- Value of the WWYR for use as a teaching tool is summarized through reviewing the genesis of the rubric as demonstrated in its path from creation for pen-and-paper narratives to hypermedia narratives as evaluated in multiple studies.
- Utility of the WWYR applied to students' hypermedia narratives is addressed to reveal possible alignment between the innovative curriculum and instruction addressed in the current study with ITBS- and WWYR-identified literacy levels.

Table 1
Writing What You Read Narrative Rubric (Wolf & Gearhart, 1994)

Theme	Character	Setting	Plot	Communication
Explicit-Implicit	Flat-Round	Backdrop-Essential	Simple-Complex	Context-bound
Didactic-Revealing	Static-Dynamic	Simple-Multifunctional	Static-Conflict	Literal-Symbolic
1: Not present or not developed through other narrative elements	1: One or two flat, static characters, with little relationship between characters	1: Backdrop setting with little or no indication of time or place ("There was a little girl. She liked candy.")	1: One or two events with little or no conflict ("Once there was a cat. The cat liked milk.")	1: Writing bound to context (You have to be there) and often dependent on drawing and talk to clarify the meaning
2: Meaning centered in a series of list-like statements ("I like my mom. And I like my dad. And I like my...")	2: Some rounding, usually in physical description; relationship between characters is action driven	2: Skeletal indication of time and place often held in past time ("Once there was..."); little relationship to other narrative elements	2: Beginning sequence of events, but out-of-sync occurrences; events without problem; problem without resolution	2: Beginning awareness of reader considerations; straightforward style and tone focused on getting the information out
3: Beginning statement of theme, often explicit and didactic ("The mean witch chased the children and she shouldn't have done that.")	3: Continued rounding in physical description, particularly stereotypical features ("wart on the end of her nose")	3: Beginning relationship between setting and other narrative elements (futuristic setting to accommodate aliens and spaceships)	3: Single, linear episode with clear beginning, middle, and end; the episode contains a problem, emotional response, action, and outcome	3: Writer begins to make sense of explanations and transitions ("because" and "so"); literal style centers on description
4: Beginning revelation of theme on both explicit and implicit levels through the more subtle things characters say and do	4: Beginning insights into motivation and intention that drive the feeling and action of main characters often through limited omniscient point of view	4: Setting becomes more essential to the development of the story in explicit ways: characters may remark on the setting, or the time and place may be integral to the plot	4: Plot increases in complexity with more than one episode; each episode contains problem, emotional response, action, and outcome	4: Increased information and explanation for the reader (linking ideas as well as episodes); words more carefully selected to suit the narrative's purpose
5: Beginning use of secondary themes, often tied to overarching theme, but sometimes tangential	5: Further rounding (in feeling and motivation); dynamic features appear in central characters and between characters	5: Setting may serve more than one function, and the relationship between functions is more implicit and symbolic	5: Stronger relationships between episodes (with resolution in one leading to a problem in the next)	5: Some experimentation with symbolism (particularly figurative language), which shows reader considerations
6: Overarching theme multilayered and complex; secondary themes integrally related to the primary themes	6: Round, dynamic major characters through rich description of affect, intention, and motivation	6: Setting fully integrated with the characters, action, and theme	6: Overarching problem and resolution supported by multiple episodes	6: Careful crafting of choices of story structure as well as vocabulary demonstrate considerate orchestration of all resources

Research Components

Methods

Children (n = 60) from four intact classrooms (two second-grade and two third-grade classrooms) produced hypermedia narratives over a 4-month period in a school-based computer laboratory equipped with 10 Windows-based microcomputers. Rater/(Teachers) (n = 5) with knowledge of the teaching of process writing and use of hypermedia software judged the hypermedia narrative productions. An interactive hypermedia software tutorial program was developed and used to train the teachers (n = 4) in the implementation of process writing techniques in conjunction with the use of hypermedia features as part of their elementary curriculum. Raters participated in a 3-hour training and rating session in a university computer laboratory equipped with five Power Macintosh microcomputers. Raters judged all students' (n = 60) hypermedia narrative productions individually without resolving differences through discussion.

Materials

The WWYR rubric shown in Table 1 contained five evaluative scales designed to assess students' developing competencies in narrative writing: Theme, Character, Setting, Plot, and Communication. The vertical analytical evaluative scales (1-6 for each competency) were designed to enable teachers to make instructional decisions on specific narrative components needing reinforcement and were not intended as a method for assigning a numerical value to a narrative. Teachers merely had to shade a box in the rubric to denote where a child's narrative was along each competency. The ITBS (Linn & Wilson, 1990) Form J was used as a basic battery for grades K-9 and included language skills directly related to writing: word analysis, vocabulary, spelling, and reading comprehension. Reliability coefficients for Form J ranged from .70-.90 for the language skills components. Additionally, the ITBS met high standards of overall technical quality and has been a widely accepted standardized measure of cognitive skill.

Hypermedia Narratives

HyperStudio Presentation Software (Wagner, 1997-2001) was used to support the children in expressing themselves with text, audio, video, and graphic elements in their narrative productions (see Figures 1-4). Children composed on paper and computer with teachers structuring the process with Writing Workshop (Graves, 1983), a method for organizing writing into discrete and recursive stages. These stages are (1) brainstorming, (2) revising, (3) drafting, (4) peer conferencing, (5) editing, and (6) publishing (see Mott & Klomes, 2001, for a detailed description of a program similar to the program addressed in the current study).

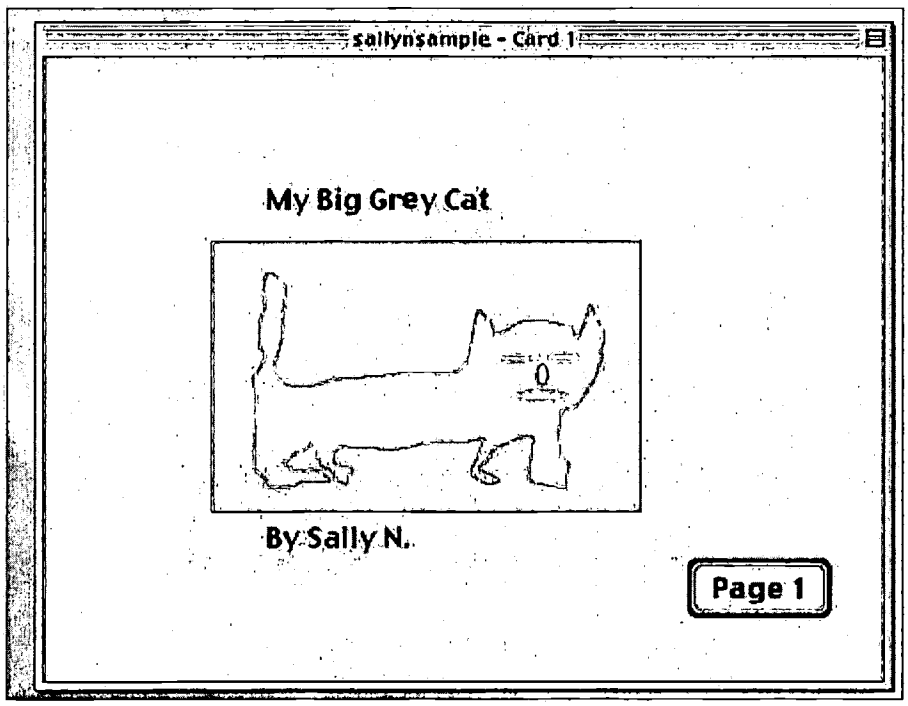

Figure 1. HyperStudio narrative "page" with hypermedia elements: Grade 2. Elements shown are (1) graphics text, (2) paint bucket tool (blue), (3) line tool: freehand, (4) hyperconnection or link to "Page 1" via button.

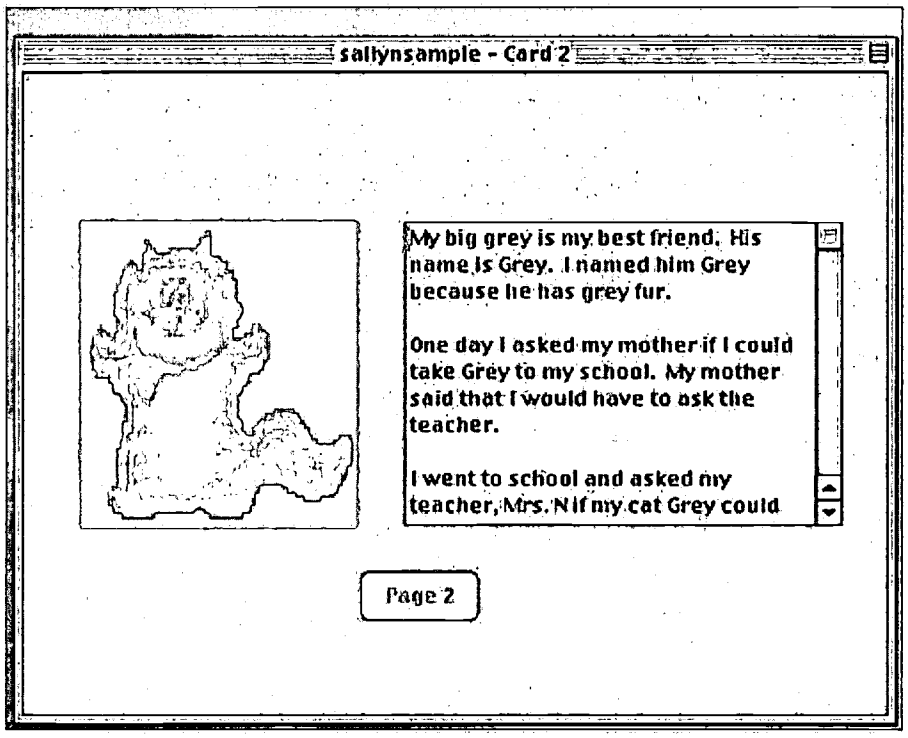

Figure 2. Page with the following features: textbox/word processed text with scrolling and a graphic (cat) inserted into Shape.

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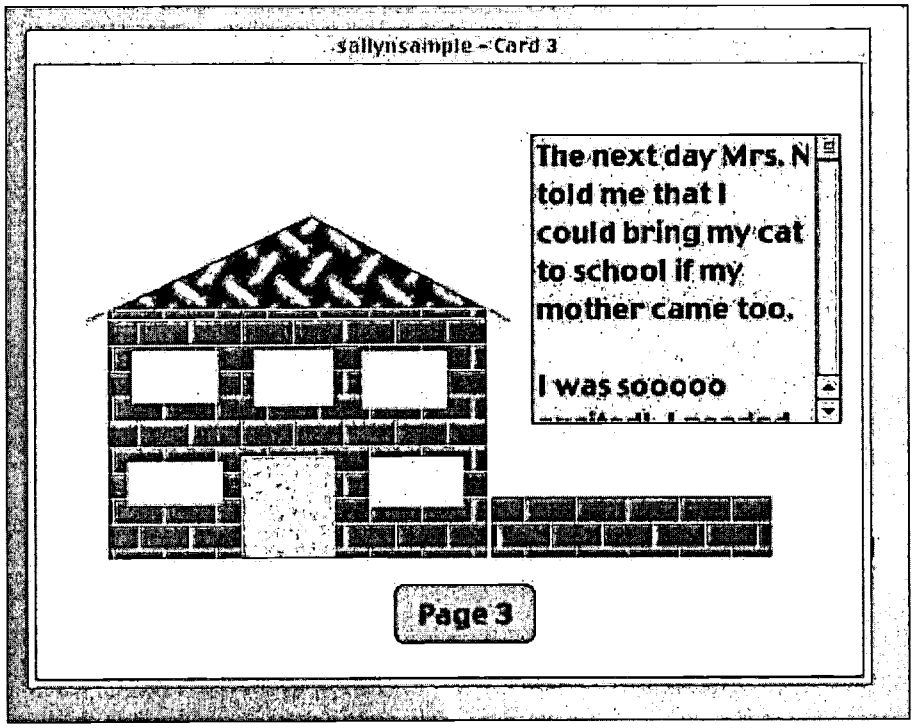

Figure 3. HyperStudio page. Note control of font, color, background color, and font size.

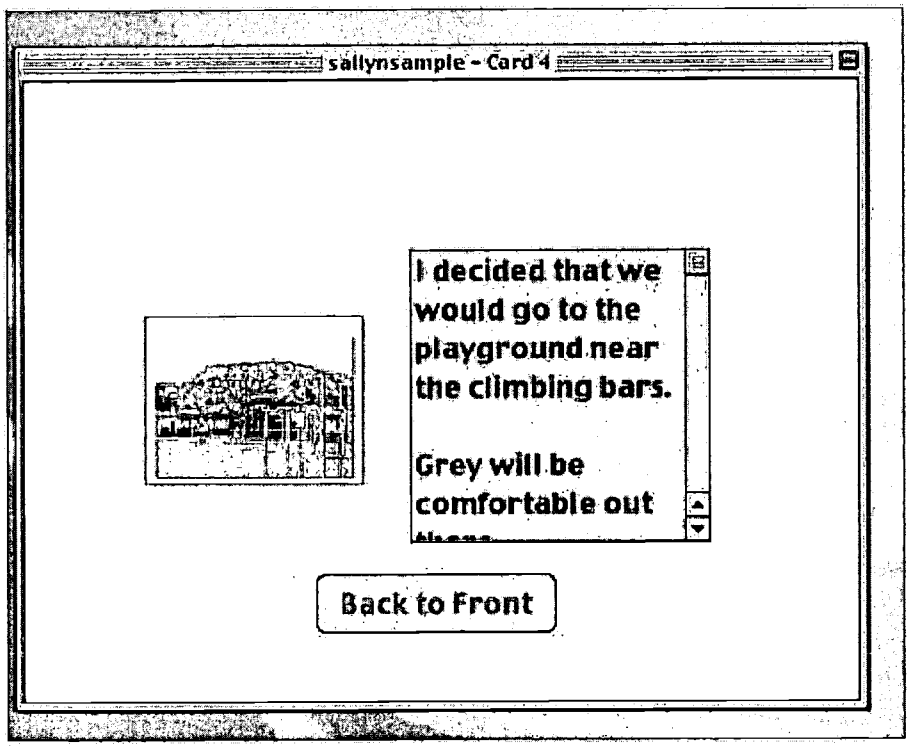

Figure 4. This page includes a scanned photograph.

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HyperStudio was selected for this project for a number of reasons: (1) it supports high-end features such as video and animation; (2) it is relatively easy to use, even by young children (grades 1-3); (3) it contains a flexible interface; and (4) it is the most widely used multimedia/hypermedia platform in elementary education with over 100,000 users (Wagner, 1997-2001). HyperStudio contains several programming features that support children's hypermedia programming (see Figures 5-10). Programming instruction (and writing workshop) occurred through mini-lessons over a 4-month period. Figures 5 through 10 contain examples from a mini-lesson.

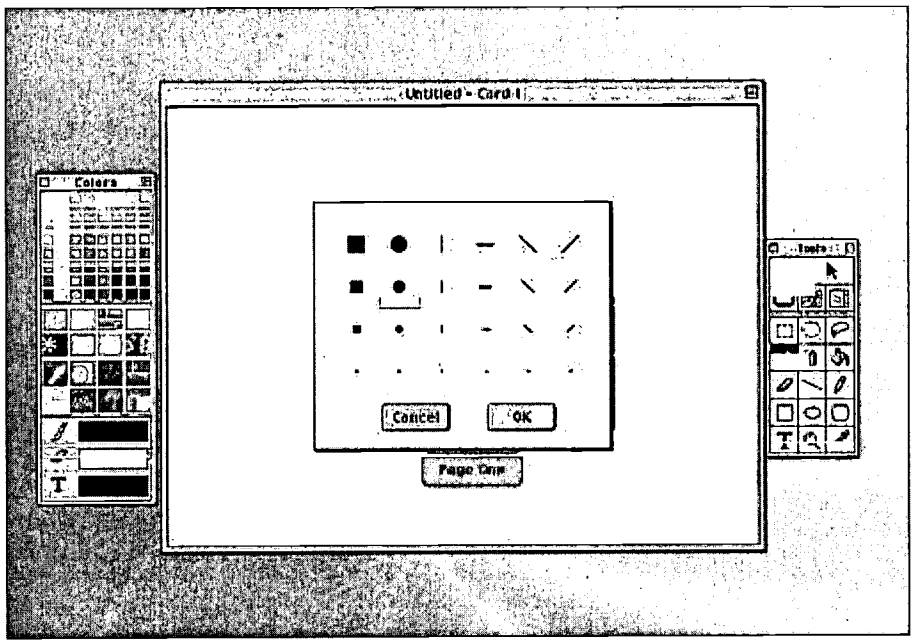

Figure 5. This page contains the programming line tool.

The line tool was introduced to children during their first programming mini-lessons.

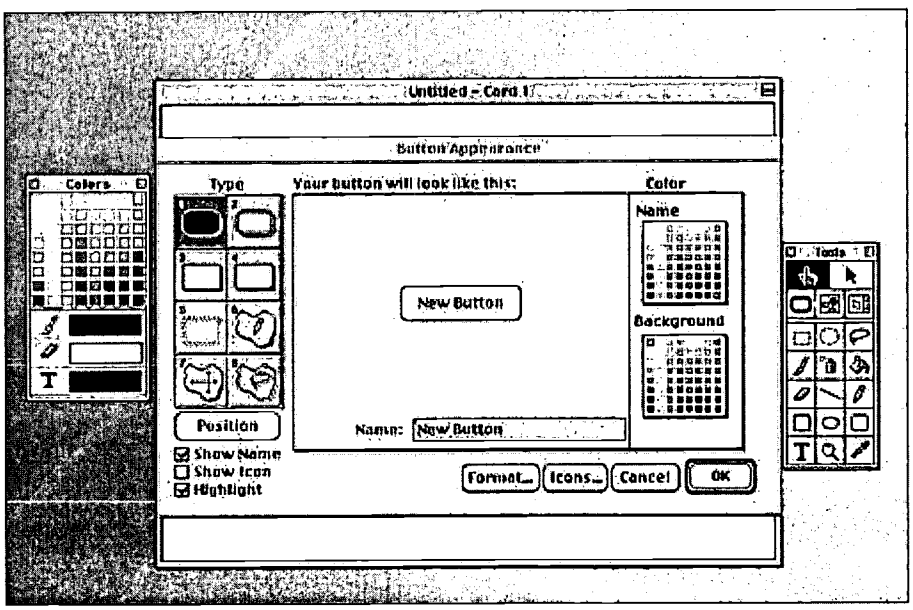

Figure 6. This page contains the hyperconnection programming tool.

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The "hyper" programming tool, button-creation, enabled children to connect cards (narrative pages) to other cards. Button-creation supported linear links, (card 1 to 2 to 3), suitable for early childhood.

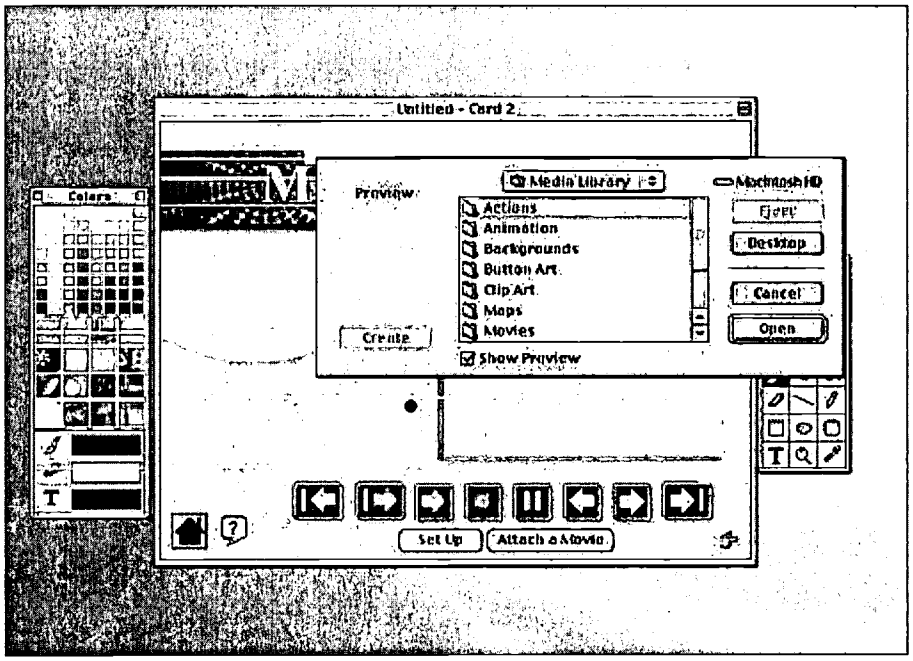

Figure 7. This page contains the graphics tool.

Children inserted graphics and scanned images from art representing many media: watercolor, acrylic paint, crayons, and colored pencils.

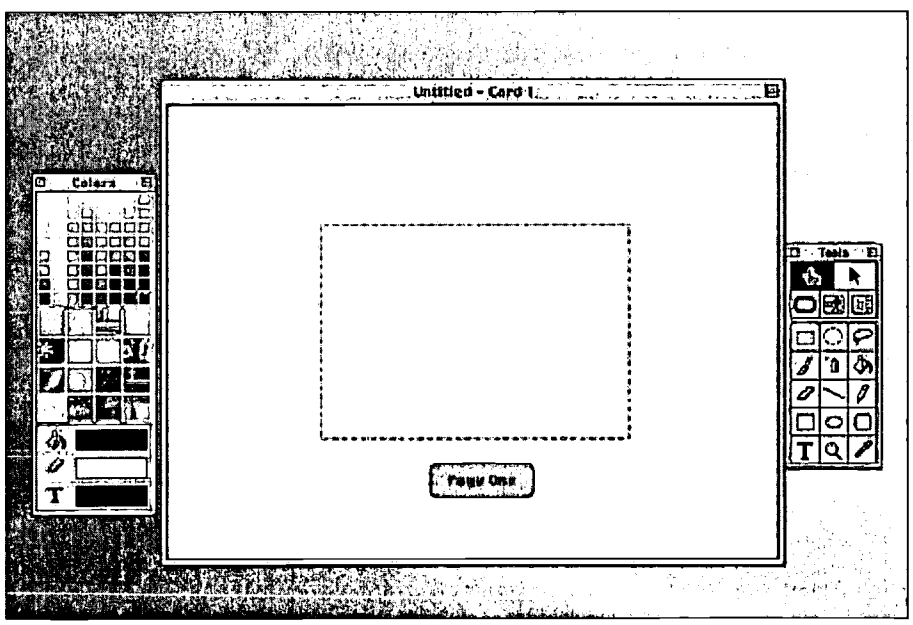

Figure 8. This page contains the textbox tool (word processing).

Writing was accomplished via the textbox tool that functions as a word processor with editing tools, cutting, pasting, and other word processor capabilities.

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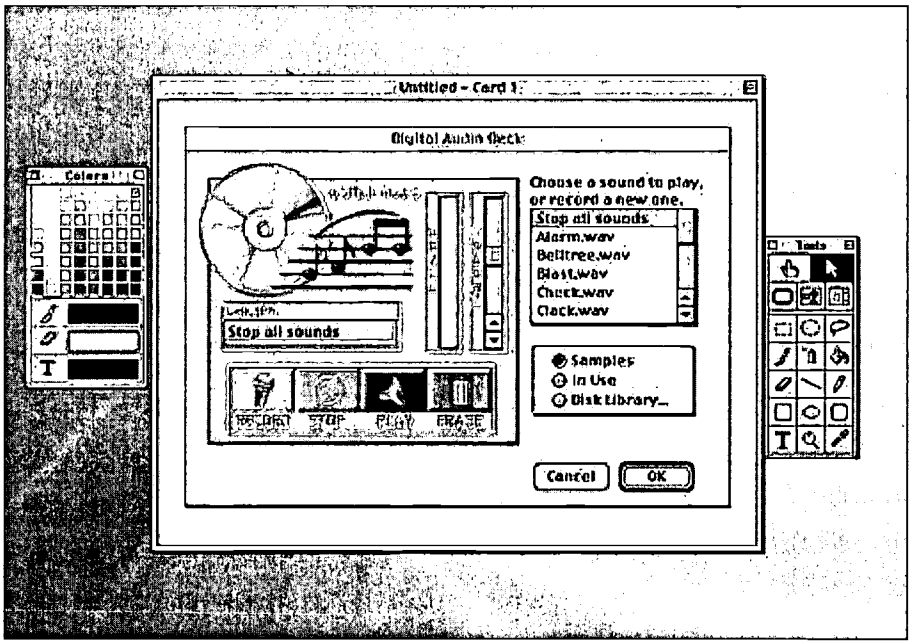

Figure 9. This page contains the digital audio deck.

Children inserted audio clips, programmed via button-creation, to enrich their text. Audio clips were recorded by the author or downloaded from HyperStudio for special effects such as an alarm clock sound.

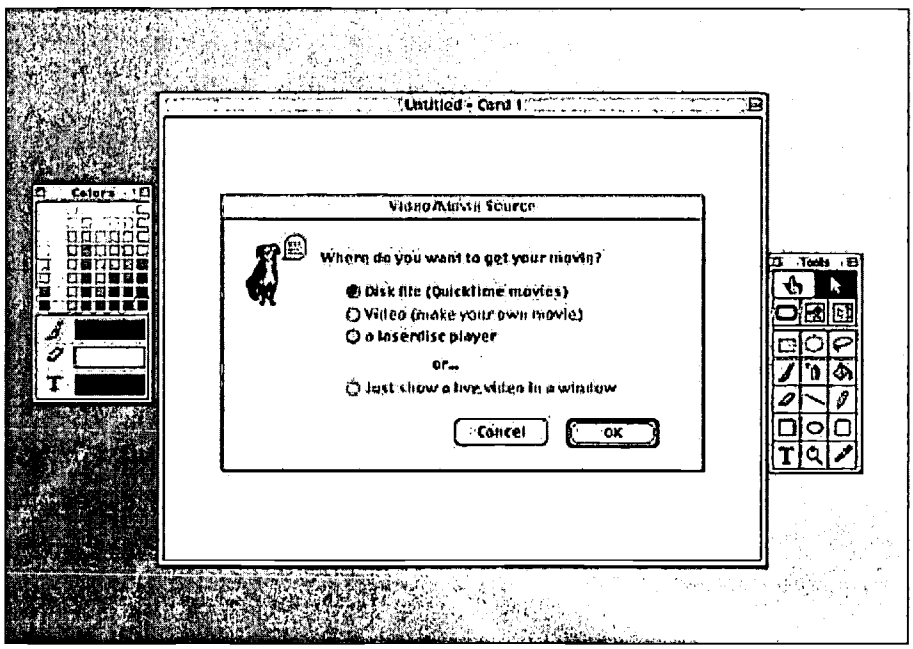

Figure 10. This page contains video control.

Video clips were inserted, programmed via button-creation, to supplement the narrative. One example was a video clip of Mars used in a science fiction narrative by a third-grade student.

Reliability

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Percentages of Agreement

Percentages of agreement for the WWYR rubric averaged across 10 pairs of raters found high percentages of agreement among raters (.70 for ±0 and .99 for ±1) (see Table 2). The ±0 and ±1 percentages of agreement across 10 pairs of raters were higher than the ±0 and ±1 agreement levels found in both the Gearhart, Herman, Novack, and Wolf (1995) and Novak, Herman, and Gearhart (1996) WWYR reliability studies (compared in Table 3). The high percentages of agreement found in this study may be attributed to the raters' use of only the first three WWYR rubric evaluative subscale levels. The WWYR rubric contains six subscale levels that are developmentally sequenced according to the varied writing competencies of students in grades K-6. Because students in this study were in second and third grade, raters typically applied only levels 1, 2, and 3 out of five total levels. This narrow range of values independently applied by raters limited the number of choices. Hence, high percentages of agreement between raters would be expected based on the limited number of scale levels used.

Table 2
Percentages of Agreement for all Five Subscales of the WWYR Rubric

WWYR Subscale	±0	±1	*n*
Theme	.70	.96	60
Character	.78	.99	60
Plot	.73	.99	60
Setting	.67	.99	60
Communication	.68	.99	60

Table 3
Percentages of Agreement for the WWYR Rubric Averaged across All Subscales

WWYR Rating Material and Grade	±0	±1	*n*
Hypermedia Narratives: Grades 2-3 Mott & Sumrall (1998)	.71	.98	60
Pen-and-Paper Narratives: Grades 1-6 Gearhart, Herman, Novak, & Wolf (1995)	.46	.96	120
Collections of Pen-and-Paper Narratives: Grades 2-5 Novak, Herman, & Gearhart (1996)	.25	.94	52

The percentages of agreement that were revealed in the current study, although higher than those found in the Gearhart, Herman, Novak, and Wolf (1995) study, should be considered descriptive information. Gearhart et al. remarked that percentages of agreement found for the WWYR should not be interpreted as "strong evidence of reliability" (p. 224). Rather, percentages of agreement can be used to help identify the existence of widely varying patterns of rater judgments, both across WWYR subscales and across all rater pairs. No such widely varying patterns were found in the current study. The limitations of analyses involving percentages of agreement analysis were discussed by Abedi (1994), who argued that, although percentages of agreement can reveal the existence of widely varying patterns of agreement among raters, they can also yield different results from other analyses such as Pearson correlations.

Pearson Correlations

Pearson correlations were used to further examine reliability of rater judgments. Pearson correlations

averaged across 10 pairs of raters found acceptable interrater reliability for four of the five subscales. For the five subscales, Theme, Character, Setting, Plot, and Communication, the *r* values were .59, .55, .49, .50 and .50. Table 4 contains the results of the Pearson correlations for WWYR rubric scoring across all rater pairs for the current study and for the Gearhart et al. (1995) study. An examination of correlation scores for hypermedia narrative productions revealed that interrater reliability for four of the five WWYR subscales (Theme, Character, Setting, and Plot) was comparable to the interrater reliability levels found in the Gearhart et al. (1995) WWYR reliability study for pen-and-paper-created narratives. For the fifth subscale (Communication), however, the correlational coefficient value was .16 higher in the Gearhart et al. study than in the current study. Despite the lower value found in the current study for Communication, Gearhart et al. related that an average subscale correlation higher than .50 could be considered adequate for a rubric such as the WWYR. Table 5 summarizes the comparison of WWYR correlations across all subscales for the current study and those found in the literature (Gearhart et al., 1995; Novak et al., 1996).

Table 4
Average Pearson Correlations for WWYR Rubric Scoring across 10 Pairs of Raters

WWYR Rating Material and Grade		Theme	Character	Setting	Plot	Communication
Hypermedia Narratives: Grades 2-3	*r*	.59	.55	.49	.50	.50
Mott & Sumrall, 1998 (*n* = 60)	*SD*	.25	.31	.25	.29	.24
Pen-and-Paper Narratives Grades 1-6	*r*	.64	.59	.48	.57	.66
Gearhart et al. (1995) (*n* = 120)	*SD*	.10	.10	.12	.14	.10

Table 5
Comparison of WWYR Subscale Correlations: Pen-and-Paper Narratives versus Hypermedia

Subscale	Theme	Character	Setting	Plot	Communication
Mott & Sumrall (1998) Hypermedia	Samples (*n* = 60)				
Theme	--	.86*	.79*	.79*	.73*
Character	--	--	.74*	.74*	.76*
Setting	--	--	--	.75*	.68*
Plot	--	--	--	--	.78*
Communication	--	--	--	--	--
Gearhart et al. (1995) Pen-and-Paper Narratives	Samples (*n* = 120)				
Theme	--	.83*	.81*	.83*	.86*
Character	--	--	.82*	.87*	.86*
Setting	--	--	--	.73*	.86*
Plot	--	--	--	--	.85*
Communication	--	--	--	--	--
Note: *$p < .001$.					

The WWYR correlations observed in this study, as well as in the Gearhart et al. (1995) study, demonstrated that ratings were highly correlated across all subscales. The *r* values were low in this study as well as in the Gearhart et al. (1995) and Novak et al. (1996) studies. However, set guidelines for what is an acceptable level of interrater reliability do not exist. Nonetheless, both Gearhart et al. and Novak et al., whose studies analyzed holistic scores derived from the combined *r* values of Theme, Character, Plot, Setting, and Communication, argued that *r* values that fell within the .50 to .70 range were acceptable for analytic writing rubrics. In the current study, the interrater reliability for Theme, Character, Plot, and Communication subscales fell within the .50 and .59 range, but the level of interrater reliability ($r = .49$) for the Setting subscale did not. It is important to note that, in the Gearhart et al. (1995) study, a low coefficient value for the subscale of Setting was also found ($r = .48$).[1] The acceptable interrater reliabilities for Theme, Character, Plot, and Communication in this study were comparable to the acceptable levels found in the Gearhart et al. (1995) study, and the *r* values for the Setting subscale in both this study and the Gearhart et al. (1995) study were not acceptable (albeit by large-scale standards). It is important to note that interrater reliability levels for Theme, Character, and Plot in this study may have been lower than the *r* values in the Gearhart et al. (1995) study because the researcher applied more stringent rating procedures in this study. Raters in the Gearhart et al. (1995) study were permitted to resolve differences greater than one scale point through discussion, whereas raters in this study were not permitted to resolve differences. In the current study, all ratings were included in the final data set.

The highly correlated rater judgments, along all five WWYR subscales for the current study and for the Gearhart et al. (1995) study, provided further evidence of the reliability of WWYR raters' judgments. The true function of a writing rubric is that it "enables raters to apply standard criteria in making judgments about the quality of students' work" (Abedi, 1994, p. 8). Gearhart et al. (1995), Novak et al. (1996), and Abedi (1994) argued that highly correlated scores across rubric subscales can be viewed as a positive indication that raters' judgments are being consistently applied.

Validity

Developmental Validity

Developmental validity of WWYR scores was examined via one-way MANOVA conducted on the low-, medium-, and high-ability vectors of WWYR subscale scores. The assumption for this analysis was based upon the technical qualities of the ITBS—Literacy measure to delineate the developmental literacy levels of the children. Results indicated a statistically significant difference between the three ability groups ($F(2, 36) = 2.59$, $p = .01$). Table 6 provides descriptive statistics, and Table 7 provides an additional summary of these results across each of the five WWYR subscales.

Table 6
Descriptive Statistics: WWYR Subscales across ITBS Ability Level

	Dependent Variables					
Statistics	***n***	**Theme**	**Character**	**Setting**	**Plot**	**Communication**
Mean Vectors						
ITBS Ability Level						
Low	13	2.31	1.80	1.96	2.10	2.14
Medium	13	2.80	2.34	2.32	2.66	2.52
High	14	2.86	2.60	2.66	2.74	2.77
Variance-Covariance Matrix						
Theme		.21	.15	.19	.13	.11

Character		--	.23	.13	.15	.13
Setting		--	--	.19	.14	.11
Plot		--	--	--	.19	.14
Communication		--	--	--	--	.16

Table 7
Mean WWYR Subscale Scores for Low-, Medium-, and High-Ability Grade-3 Students

WWYR Subscale	ITBS NPR/Literacy Category	Mean Score	*SD*	*n*	*F*	*Sig*
Theme	Low	2.31	.62	16	6.19	.01
	Medium	2.80	.28	10		
	High	2.86	.31	13		
Character	Low	1.80	.50	16	10.77	.01
	Medium	2.34	.38	10		
	High	2.60	.51	13		
Setting	Low	1.96	.42	16	9.34	.01
	Medium	2.32	.56	19		
	High	2.66	.34	13		
Plot	Low	2.10	.54	16	9.28	.01
	Medium	2.66	.34	10		
	High	2.74	.34	13		
Communication	Low	2.14	.47	16	9.20	.01
	Medium	2.52	.34	10		
	High	2.77	.35	13		

Tukey HSD tests were conducted on the mean vector scores of the three ability groups for all five WWYR subscales to follow up these results. For the WWYR subscale of Theme, low-ability students ($M = 2.31$, $SD = .62$) received lower scores than both medium-ability students ($M = 2.80$, $SD = .28$) and high-ability students ($M = 2.86$, $SD = .31$). For the WWYR subscales of Character, Setting, Plot, and Communication, all differences were significant. Therefore, low-ability students' scores were significantly lower than medium-ability students' scores, which were significantly lower than the high-ability students' scores. The significant differences revealed between low, medium, and high ITBS groups and the WWYR subscale scores provided evidence for the sensitivity of the WWYR to measure the development of students' hypermedia/writing competence. The significant results of the one-way MANOVA suggest that raters' judgments were evaluating students' skills as message producers (communication through text and other meaning-based symbol systems). The one-way MANOVA did not yield results that would enable the researcher to describe the degree of relatedness of raters' WWYR judgments and students' ITBS scores. In order to describe the relationship between WWYR scores and literacy skill (as measured by the ITBS), additional correlational analyses were conducted.

Concurrent Validity

The observed Pearson *r* correlation revealed a positive relationship between students' average WWYR

score (averaged across the subscales of Theme, Character, Setting, Plot, and Communication) and their ITBS National Percentile Rank (literacy skills score), $r = .83$, $p > .001$. The positive correlation ($r = .83$) between students' WWYR scores and ITBS scores revealed in this analysis provided evidence for the concurrent validity (the degree to which test scores are related to the scores on an already established test) of WWYR raters' judgments of hypermedia productions. According to Messick (1992), establishment of the concurrent validity of a measure can be a stepping-stone toward establishment of the content-related validity (the degree to which scores evaluate the specific domain they were designed to evaluate) of a measure. Hence, the developmental and concurrent validities established for WWYR raters' judgments of hypermedia productions represented an important initial attempt toward eventually establishing the content-related validity of the WWYR when applied to hypermedia productions.

The strong, positive, linear relationship between ITBS literacy skill scores and WWYR rater judgments of hypermedia productions indicated that the hypermedia writing curriculum used in the current study involved literacy-based activities. The fact that students in this study expressed themselves through hypermedia features, and not solely through text, indicated that students' literacy skill can be enhanced through student expression via hypermedia and multimedia features. Table 8 provides additional information on the students' utilization of the hypermedia features used in their writing. This finding supported the claims of Daiute and Morse (1994), who observed that students who engaged in hypermedia writing developed literacy skill through the manipulation of text and other symbols. A weakness of the developmental and concurrent validity analyses was that evidence for obtaining the degree to which rater judgments of students' hypermedia productions evaluated textual features as well as textual and other hypermedia features (audio, hypermedia links, graphics, etc.) could not be determined.

Table 8
Frequency of HyperStudio Multimedia Features Used in Students' Hypermedia Narrative Productions*

	Hypermedia/Multimedia Feature						
Grade Level	**Button with Hypermedia Link**	**Button with Audio**	**Button with Video**	**Text Box**	**Graphics Text**	**Scanned Art**	**Graphics Objects (Clip Art)**
2 ($n = 20$)	100%	81%	0%	100%	45%	96%	82%
3 ($n = 40$)	100%	100%	5%	100%	64%	100%	100%

*Note. In three out of the four classrooms where hypermedia/writing occurred, students' use of hypermedia/multimedia features was controlled by the teachers.

Assessment Value and Utility

The results of this study suggest several important implications for the assessment of students' hypermedia products. Having a reliable and valid assessment for evaluating students' hypermedia-based writing serves two general purposes: (1) to enhance classroom instruction (value), and (2) to inform, to a lesser extent, educational policy (utility). The positive results yielded in this study concerning the reliability and validity of the WWYR provide an avenue for teachers to accurately and consistently evaluate their students' hypermedia narrative productions by applying the WWYR assessment. The value of an assessment is the degree to which it enhances teacher instruction by linking teachers' comments to their instructional objectives (Wolf & Gearhart, 1994). Therefore, in order for teachers to properly evaluate both student outcomes and the instructional effectiveness of their hypermedia/writing curricula, it is useful for all educators to apply a reliable and valid instrument. Furthermore, the positive correlation between the students' ITBS literacy skill score and WWYR average score for hypermedia productions indicated that students who were engaged in a hypermedia/writing curriculum improved their literacy skills.

Table 9
Hypermedia-WWYR

Hypermedia	Theme	Character	Setting	Plot	Communication
Elements	Explicit-Implicit	Flat-Round	Backdrop-Essential	Simple-Complex	Context-bound
	Didactic-Revealing	Static-Dynamic	Simple-Multifunctional	Static-Conflict	Literal-Symbolic
-Text- -Hypertext- -Graphic- -Audio- -Video-	1: Not present or not developed through other narrative elements	1: One or two flat, static characters, with little relationship between characters	1: Backdrop setting with little or no indication of time or place ("There was a little girl. She liked candy.")	1: One or two events with little or no conflict ("Once there was a cat. The cat liked milk.")	1: Writing bound to context (You have to be there) and often dependent on drawing and talk to clarify the meaning
-Text- -Hypertext- -Graphic- -Audio- -Video-	2: Meaning centered in a series of list-like statements ("I like my mom. And I like my dad. And I like my...")	2: Some rounding, usually in physical description; relationship between characters is action driven	2: Skeletal indication of time and place often held in past time ("Once there was..."); little relationship to other narrative elements	2: Beginning sequence of events, but out-of-sync occurrences; events without problem; problem without resolution	2: Beginning awareness of reader considerations; straightforward style and tone focused on getting the information out
-Text- -Hypertext- -Graphic- -Audio- -Video-	3: Beginning statement of theme, often explicit and didactic ("The mean witch chased the children and she shouldn't have done that.")	3: Continued rounding in physical description, particularly stereotypical features ("wart on the end of her nose")	3: Beginning relationship between setting and other narrative elements (futuristic setting to accommodate aliens and spaceships)	3: Single, linear episode with clear beginning, middle, and end; the episode contains a problem, emotional response, action, and outcome	3: Writer begins to make sense of explanations and transitions ("because" and "so"); literal style centers on description
-Text- -Hypertext- -Graphic- -Audio- -Video-	4: Beginning revelation of theme on both explicit and implicit levels through the more subtle things characters say and do	4: Beginning insights into motivation and intention that drives the feeling and action of main characters often through limited omniscient point of view	4: Setting becomes more essential to the development of the story in explicit ways: characters may remark on the setting, or the time and place may be integral to the plot	4: Plot increases in complexity with more than one episode; each episode contains problem, emotional response, action, and outcome	4: Increased information and explanation for the reader (linking ideas as well as episodes); words more carefully selected to suit the narrative's purpose
-Text- -Hypertext- -Graphic- -Audio- -Video-	5: Beginning use of secondary themes, often tied to overarching theme, but sometimes tangential	5: Further rounding (in feeling and motivation); dynamic features appear in central characters and between characters	5: Setting may serve more than one function, and the relationship between functions is more implicit and symbolic	5: Stronger relationships between episodes (with resolution in one leading to a problem in the next)	5: Some experimentation with symbolism (particularly figurative language), which shows reader considerations
-Text-	6: Overarching theme multilayered	6: Round, dynamic major characters	6: Setting fully integrated with the characters,	6: Overarching problem and resolution	6: Careful crafting of choices of story structure as well as

-Hypertext- -Graphic- -Audio- -Video-	and complex; secondary themes integrally related to the primary themes	through rich description of affect, intention, and motivation	action, and theme	supported by multiple episodes	vocabulary demonstrate considerate orchestration of all resources

Note

1. A note on correlations averaged across raters: (1) A relatively small number of raters (n = 5) were used in this study and the Gearhart, Herman, Novak, and Wolf (1995) study, which may have contributed to the lower r values across all subscales. The attenuation of correlational coefficients may be another explanation for the low levels of interrater reliability (Gay, 1996). Accordingly, coefficients tend to be lower when a restricted range of values is utilized (e.g., the narrow range of only 3 out of a possible 6 WWYR subscale levels utilized by raters in this study). Thus, the more narrow the range of scores utilized by raters, the lower the coefficients. On the other hand, Gearhart et al. argued that if the number of raters was statistically increased five-fold, r values in the .50 to .60 range for Theme, Character, Setting, Plot, and Communication would be changed to .87, .89, .82, .86, and .89, respectively. Gearhart et al. used decision-study (multiplication of sample scores and aggregation of the results) coefficients to determine the number of raters needed to attain high reliability coefficients. (2) The r value for the Communication subscale in this study was considerably lower than the r value in the Gearhart et al. study (r = .50 versus .66). This sizable disparity in the level of interrater reliability may have been the result of the contrasting features of hypermedia-created narrative productions versus pen-and-paper-created narratives. The Communication subscale text primarily consisted of evaluative prompts designed to guide teachers in the assessment of writing style (see Table 1). Perhaps, in the current study, raters solely viewed textual features at the expense of the hypermedia features of graphics, sounds, buttons, and scanned art.

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Author Information

Dr. Michael Seth Mott is an assistant professor of literacy/early childhood education at Purdue University Calumet. Dr. Mott conducts research in literacy and technology integration and designs materials for teaching both literacy and foundations of education courses.

Dr. Michael Seth Mott
Assistant Professor of Literacy
Purdue University Calumet
2200 169th Street
Hammond, IN 46323
Email: mott@calumet.purdue.edu

Cynthia Etsler is a visiting instructor in the School of Education at Purdue University Calumet. In addition to mentoring new faculty in the School of Education, Professor Etsler is designing digital courseware for courses in literacy and science methods for preservice and inservice teachers.

Deondre Drumgold is an administrator in Bank Street College's Computing and Information Services (CIS) Department where he provides computing, audiovisual, telecommunications, and networking support for the College's academic and administrative communities.

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A Study of Bones

Yvonne Kogan
Eton School, Mexico City

Abstract

This article describes a study of bones undertaken by 5-year-old children in a bilingual school in Mexico City. The article discusses the process and shows the results achieved by the children during the three phases of the project through photographs and other documentation of the children's work. The article concludes with reflections by the author and parents.

Background Information

Eton School is a bilingual (Spanish-English) institution in Mexico City. The school's population mainly consists of Mexican children who do not speak English at home. In the Early Childhood Department that serves children ages 2 to 6, children are instructed only in English. Our school becomes bilingual from 1st through 12th grade (ages 7-19). Because our young children are only just starting to be exposed to English, many teachers feel that it would be virtually impossible for them to hold discussions or ask questions in the language they are learning. However, this article indicates that project work can be done with young children who are schooled in a full immersion program in a second language.

Emerging Project and Preliminary Planning

During September, the kindergarten children had been working on a theme about the human body. The children started telling personal stories about their experiences with doctors and getting hurt, and they expressed a special interest in accidents and broken bones.

The teacher brought in several X-rays, a pair of crutches, and some items such as knee braces and air casts that the children could use for role-playing activities. She wanted to see if the children's interest in this topic was intense enough to start an in-depth study. She explored whether she could invite an expert and whether it would be possible to visit an X-ray room at a clinic or a hospital. Everything fell into place, and the teacher decided to take on this topic to pursue a project.

Figure 1. Liam tried on an air cast.

Figure 2. Teli pretended to hurt her arm.

Phase 1

The teacher and principal discussed the interests of the children and the conversations held by the children during role-play, which the teacher had recorded as she walked around the classroom with a notepad. Together they made a web to visualize the possibilities for developing the topic.

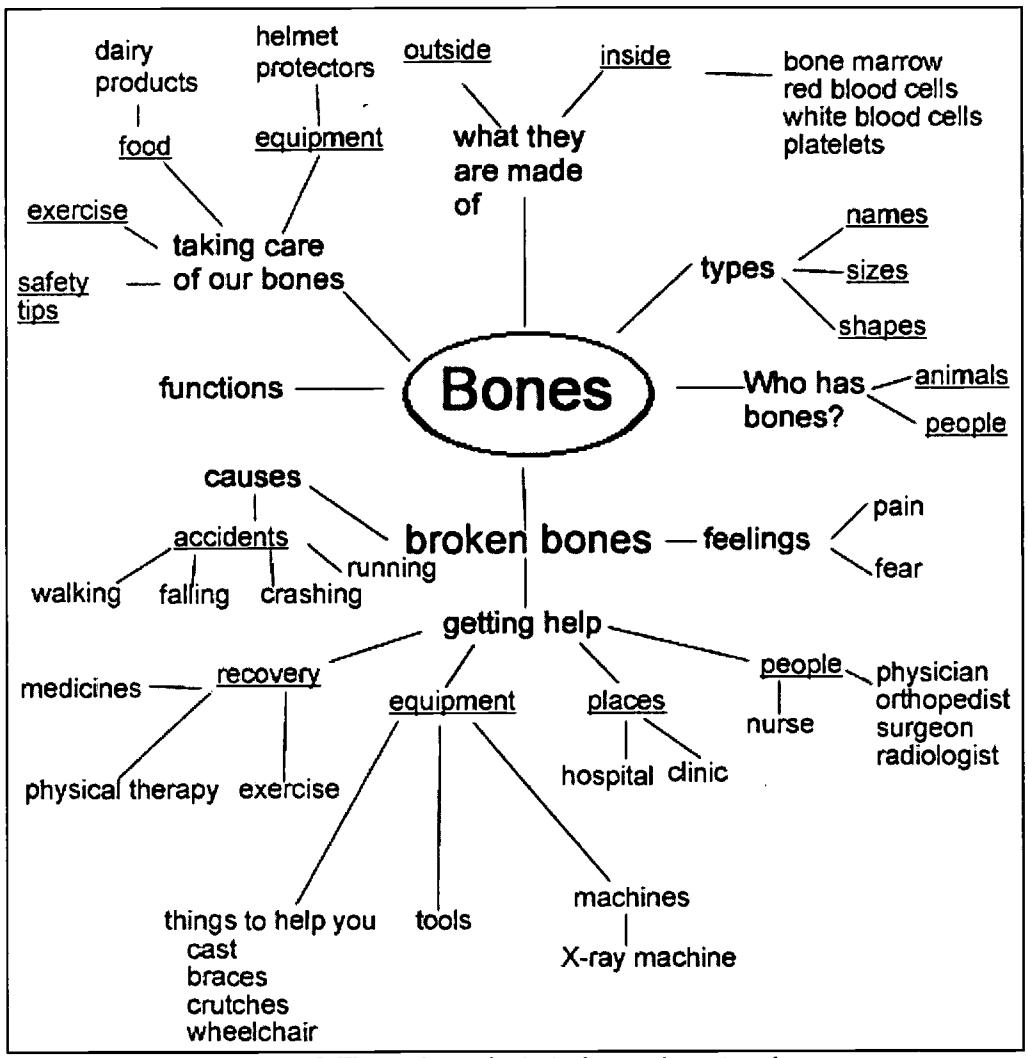

Figure 3. The teacher and principal created a topic web about bones based on the children's conversations.

The principal came to the classroom and told a story about how she hurt her ankle. She explained why she needed to wear an air cast and demonstrated how to put it on.

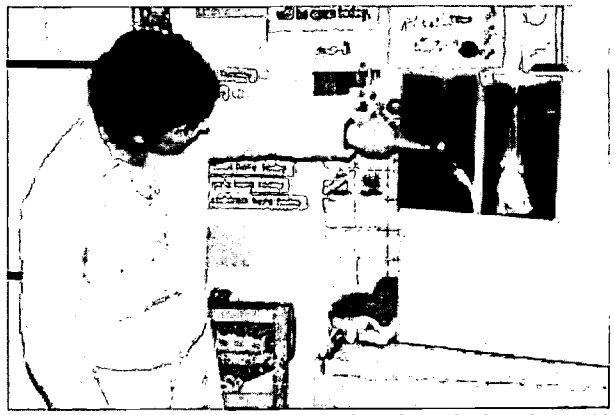

Figure 4. The principal told a story about how she hurt her ankle.

Children started telling personal stories about their family members or friends breaking a bone. Teli, one of the girls in the class, told a story about breaking her collarbone when she fell from a cart at the supermarket.

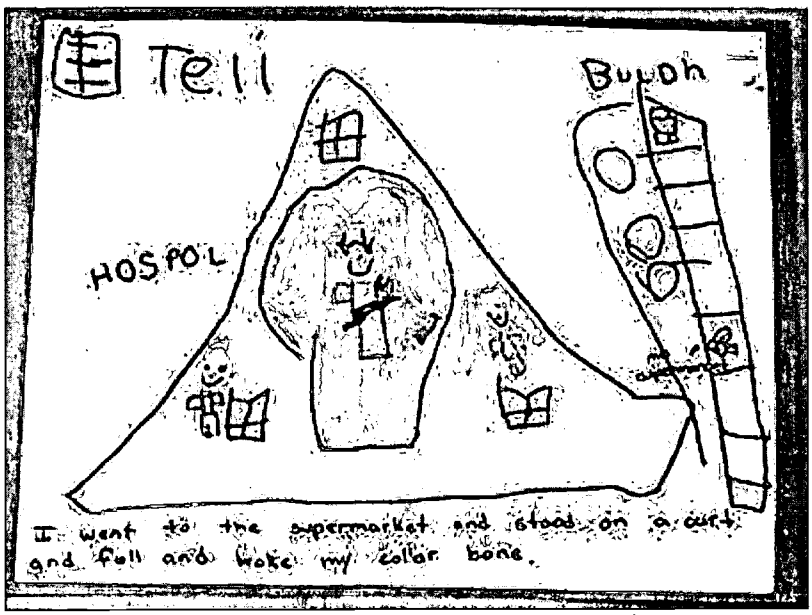

Figure 5. Teli told a story about breaking her collarbone.

The children made memory drawings of their bones and then shared their drawings during a class meeting.

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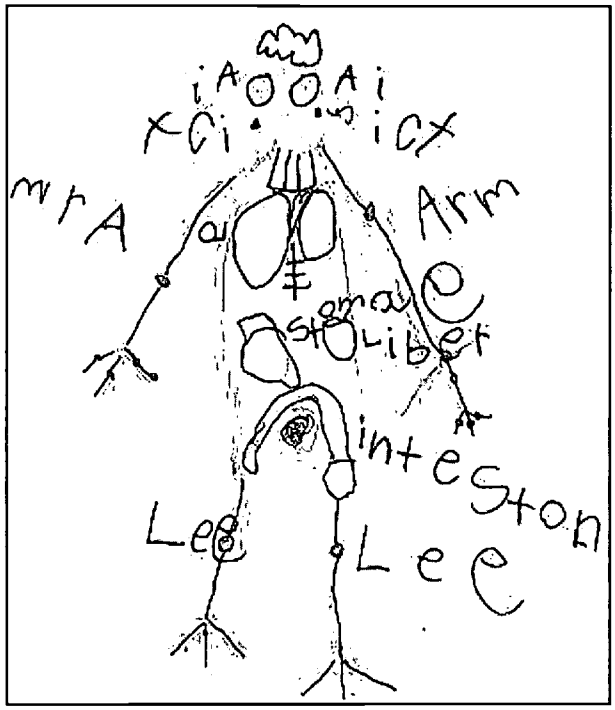

Figure 6. The children made memory drawings of their bones.

Figure 7. The outside of the body.

Figure 8. The inside of the body.

The children started asking questions about bones, and the teacher wrote them down and displayed them on a poster board in the classroom.

- How many bones do we have?
- What is inside our bones?
- How does the doctor know when a bone is broken?
- What things does a doctor use?
- Are people's bones the same as dogs' bones?
- What does an X-ray machine look like?
- How does an X-ray machine work?
- How does a cast get hard?
- Are there many colors of casts?
- What happens when a cast gets wet?
- How can a person take a cast off?
- What kind of shoes do you wear when you are wearing a cast on your foot?
- Do many children have broken bones?

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- What animals have bones?
- How can we take care of our bones?

A girl brought an X-ray of her dog, and we compared it to an X-ray of human bones. We made a Venn diagram to record the data.

Figure 9. The children compared an X-ray of a dog with an X-ray of human bones.

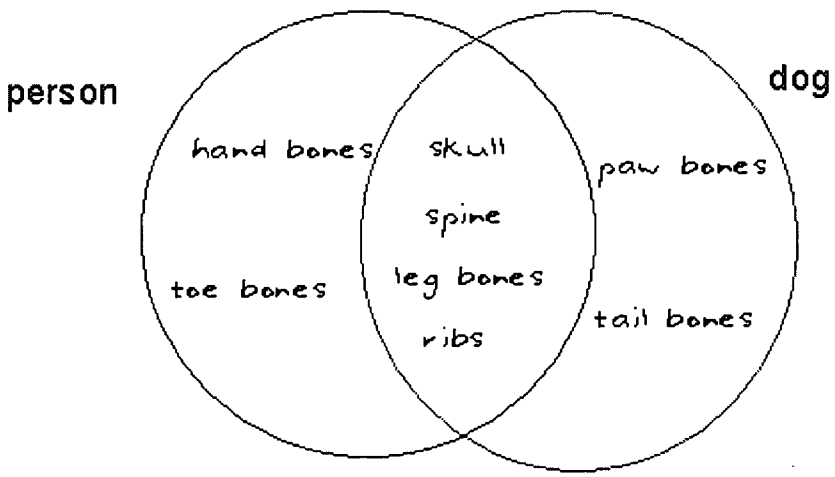

Figure 10. The teacher made a Venn diagram with the information the children dictated.

The principal brought in some chicken bones, and the children looked at them using a magnifying glass. Next, they shared their predictions of what they thought was inside bones, and they drew and labeled drawings of bones.

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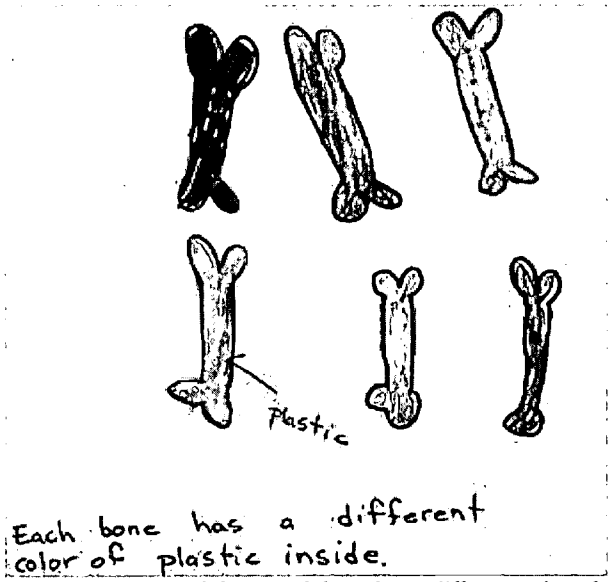

Figure 11. Some children predicted that "Each bone has a different color of plastic inside."

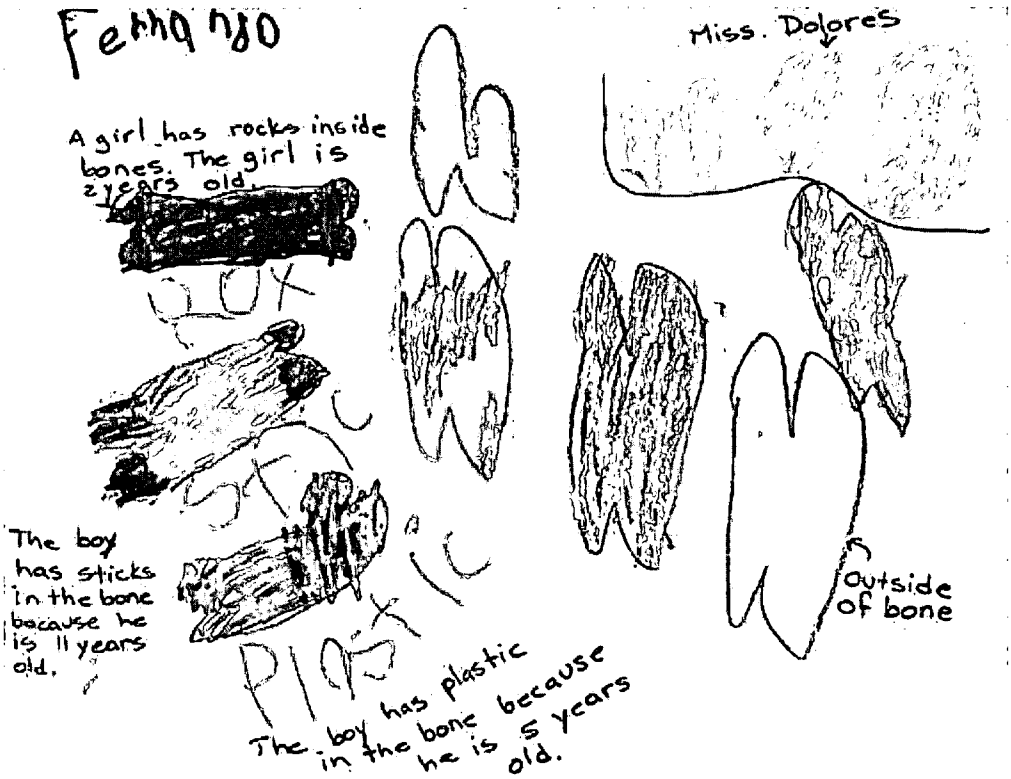

Figure 12. Some children thought that what is inside our bones changes as we grow: "A girl has rocks inside her bones because she is 2 years old. The boy has plastic inside his bones because he is 5 years old. The boy has sticks inside his bones because he is 11 years old."

After a couple of days, we broke open the chicken bones and put them under a magnifying lens. The children carefully examined them and made an observational drawing. Later on, they compared their predictions to what they saw. They enjoyed this activity immensely, and when they shared their findings during group time, all the children laughed at their predictions.

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Figure 13. A child looked at the inside of chicken bones through a magnifying lens.

Figure 14. The children made observational drawings of the inside of a chicken bone.

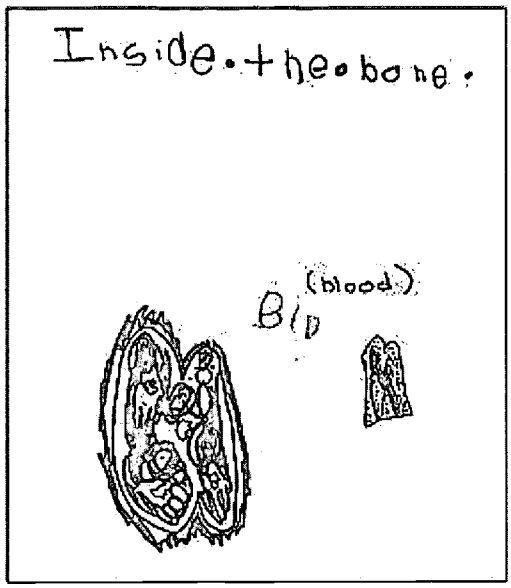


Figure 15. Observational drawing.

One group of children was interested in finding out how many children at school had broken bones at that moment. They designed a form to conduct a survey, and they surveyed all the classrooms. They found out that one child had a broken arm.

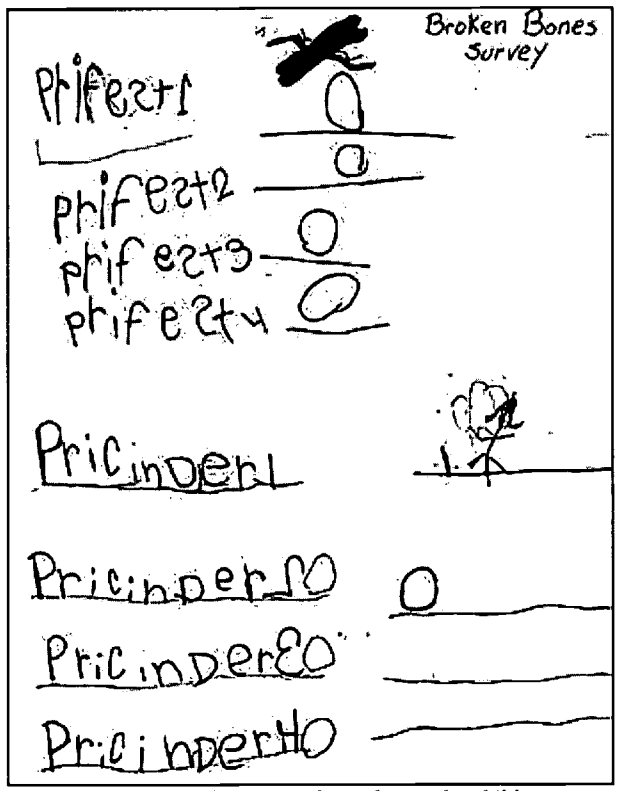


Figure 16. As this survey form shows, the children found a girl with a broken arm in the pre-kindergarten 1 class.

Phase 2

In preparation for our field visit, the children predicted what they thought they were going to see at the clinic. The teacher displayed their predictions on a poster board in the classroom so that they could revise their predictions after the trip. Most of the children were particularly interested in seeing the X-ray machine. Before the trip, they made predictions as to how long the machine would be. The measurement was estimated by calculating the number of children that would make up the length of the machine.

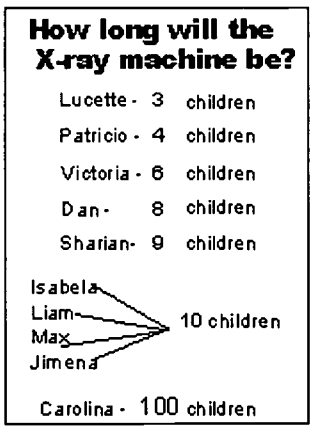


Figure 17. The children predicted how long the X-ray machine would be.

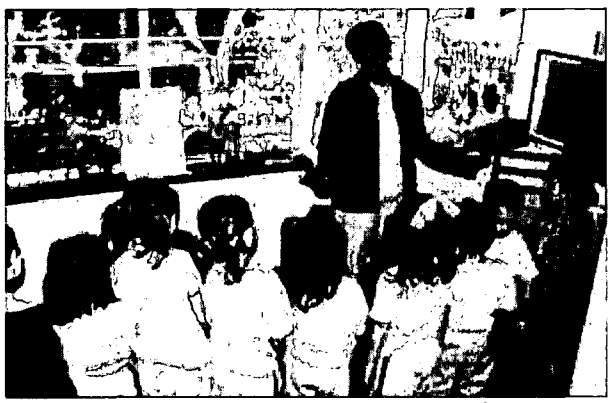
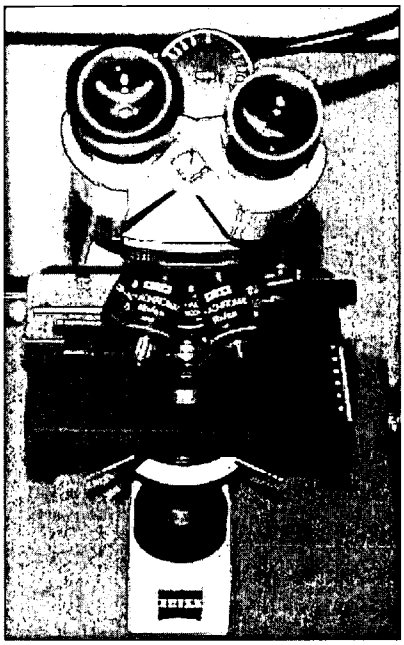


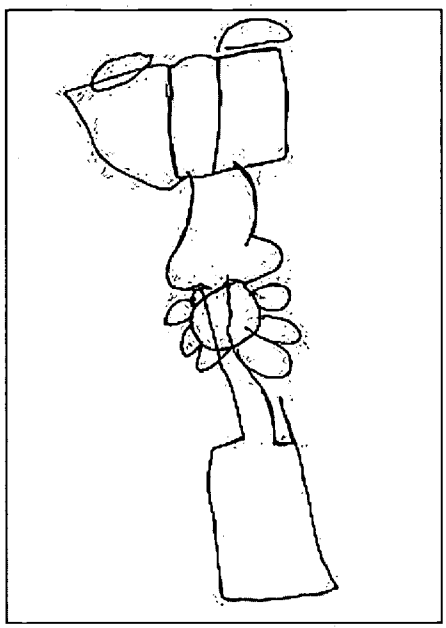
Figure 18. The children lined up to estimate the length of the X-ray machine.

When we arrived at the clinic, Teli's grandfather, a doctor who works there, was waiting for us in the parking lot. He first took us to visit the lab. There, children were able to look at blood samples through a microscope. Children recalled that bone marrow is inside their bones. The teacher commented that blood cells are produced inside our bones.

Figure 19. The children looked at blood samples through a microscope.

Some children made observational drawings of the microscope and what they saw.





Figures 20-21. Photograph and field sketch of a microscope.

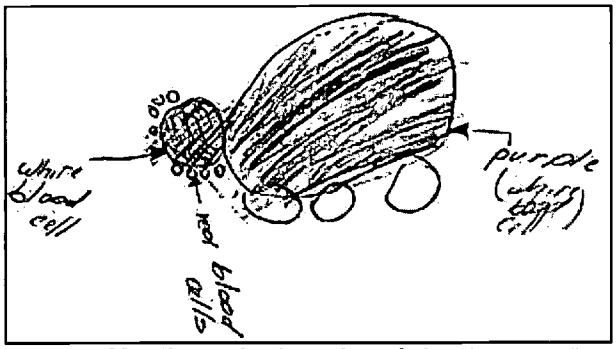


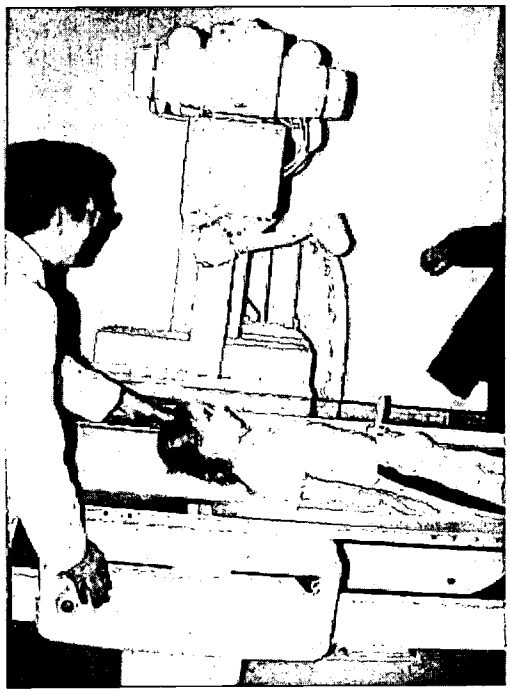
Figure 22. "This is what I saw through the microscope."

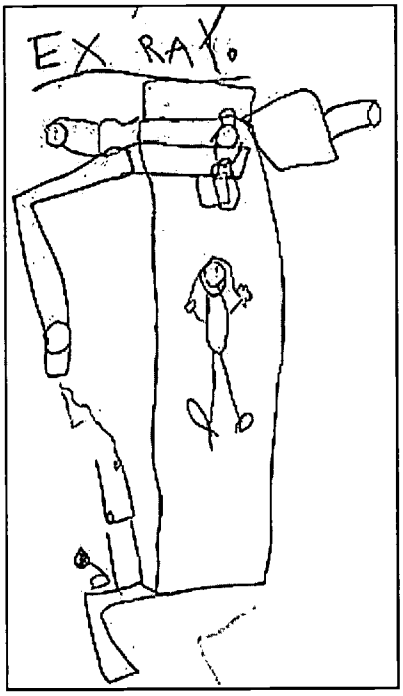
Then, we proceeded to the Radiology Department. The children had a chance to see a computer monitor where doctors look at X-rays. We saw images of how different bones look. Some children found this experience interesting and decided to take field notes.

Figure 23. This child made a field sketch of the

computer, the physician, and what was displayed on the monitor.

Next, we went to see the X-ray machine. The doctor demonstrated how the machine worked and how he took X-rays.





Figures 24-25. Photograph and field sketch of Teli on the X-ray machine.

The children were allowed to stay in the room for a while to make field sketches of the machine and the room itself and to take field notes.

Figure 26. The children made sketches and took notes.

Figure 27. Field sketch made during the visit.

Then, the children sat in the X-ray room, and the doctor answered the questions that they had dictated to the teacher at school.

The children measured the X-ray table by lining up beside it to see whether their predictions matched the machine's real measurements. Carolina, who had predicted that the machine would be 100 children long, said,"What I said at school was really silly, now I know that the machine is only nine children long."

Figure 28. The children measured the X-ray table by lining up beside it.

After the visit, the children retold the story of their field experience. They recalled what they saw and compared their narration of the trip to the predictions made before the trip. They concluded that they did see sick people, doctors, nurses, and the X-ray machine, but they did not see doctors' offices or tools.

After retelling the story, children worked on journal entries that expressed what had interested them most during the visit.

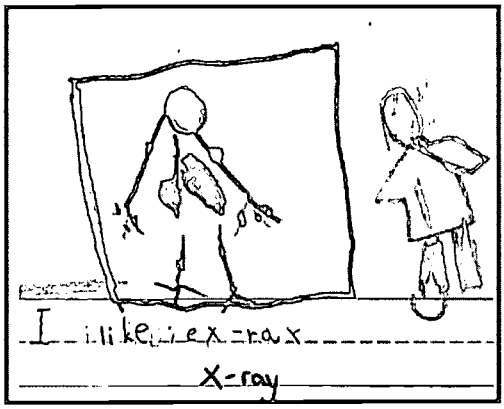


Figure 29. Journal entry after the visit.

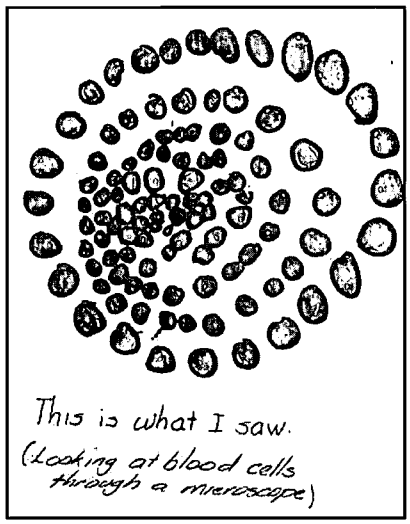


Figure 30. Memory drawing after the visit.

The following day, as we held our morning meeting, we realized that we had a lot to do. Children and teachers suggested work that needed to be done. We formed several groups, and the children selected what they wished to work on.

Representing Knowledge

Writing a Thank-you Letter to Teli's Grandfather (the doctor who took care of us at the clinic). A group of children talked about the visit and what they wanted to write about. Some of them wrote about the bones and X-ray machine, and others drew pictures.

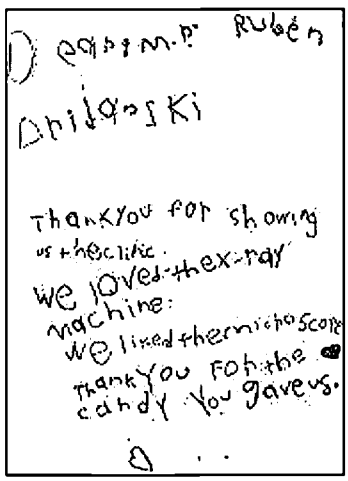


Figure 31. The children wrote a thank-you note to the doctor.

Figure 32. Children wrote about their experience or sketched.

Becoming Bone Experts. Some children were interested in finding out names of bones and their location in our body. They worked in pairs and labeled a diagram of the skeleton by looking for information in books. Each of the children learned some names and shared his or her knowledge with the rest of the class at the end of the day when each group reported what the group had worked on during the session.

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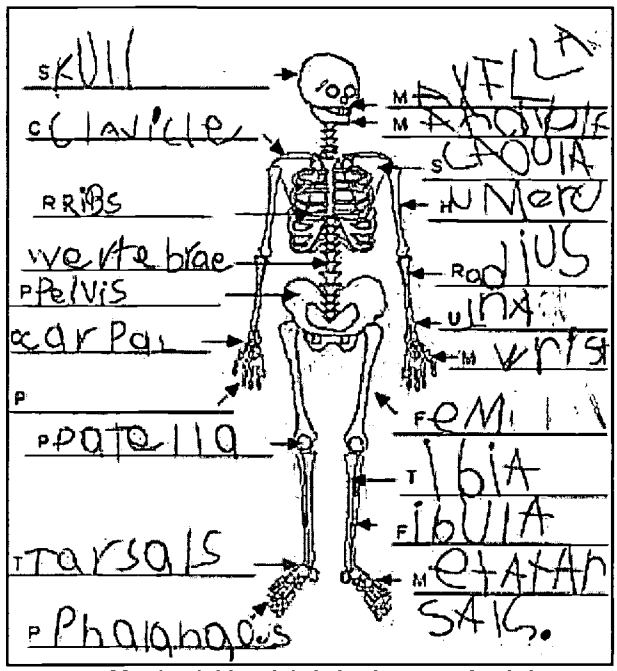

Figure 33. The children labeled a diagram of a skeleton.

A group of bone experts wanted to find out the length of different bones and proceeded to measure them using Unifix cubes. Some children measured the femur, others the humerus, others the radius, and so on. The teacher demonstrated how they could use a ruler to measure the length of their bones.

Figure 34. Children measured the length of bones using Unifix cubes.

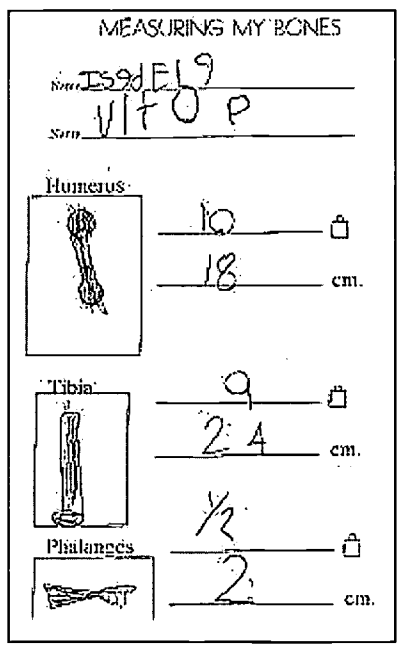

Figure 35. The children recorded the length of bones in Unifix cubes and centimeters.

The children found out which bones in the body are the smallest and the biggest as well as the number of bones that make up the human skeleton.

Children in one group made observational drawings by looking at photographs in books.

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Figure 36. Comparison of the first memory drawing and the observational drawing of the same child.

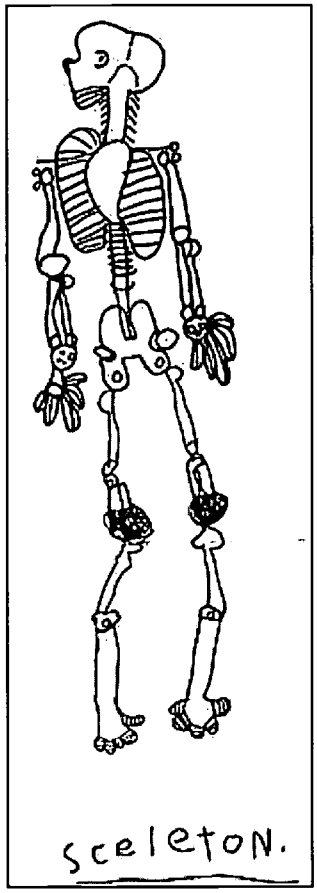


Figure 37. Observational drawing.

Building Bones. One group of children first drew a big plan of what they wanted to do, which showed the outside and the inside of the bone. They labeled the different parts of a bone and included words such as bone marrow and red blood cells.

Figure 38. A group of children drew the outside and inside of the bone.

Next, the children decided which bone each wanted to build by looking at a diagram. The teacher wrote their names beside the bones they selected so that they would have a visual reference when working.

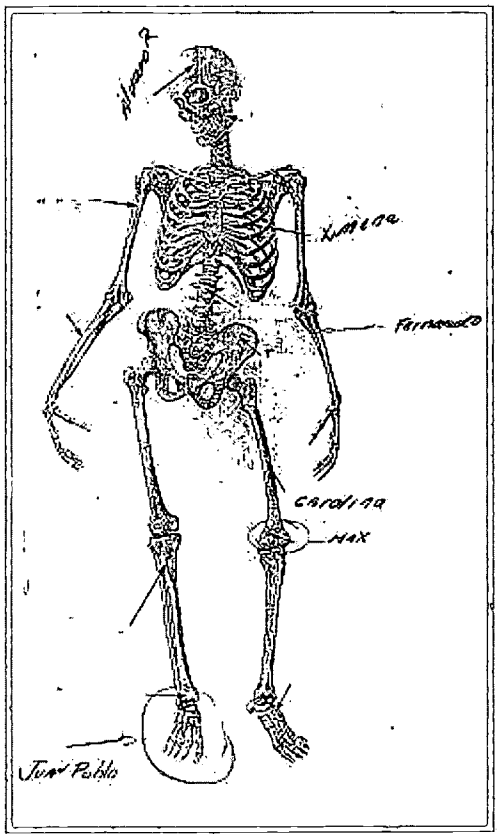


Figure 39. The teacher wrote the children's names next to the bone they wanted to investigate.

The children selected the things they needed and started building different bones. They used recyclable materials for the outside and sponge for the inside. They later painted their creations and labeled them. This group of children worked for four sessions until their bones were completed.

Figure 40. Juan Pablo built the foot using cardboard tubes and plastic forks.

Figure 41. One of our mothers helped Alvaro build a skull.

Figure 42. These children showed their creations to their classmates. They placed them on top of the bones they intended to build.

Building an X-Ray Machine. Some children looked at the pictures of the X-ray machine taken during the field visit. They discussed them and made a list of things they needed in order to build the machine. Then they proceeded to number the pictures so that they could each be in charge of building a specific part. Next, they drew an enlarged floor plan of how the machine should look.

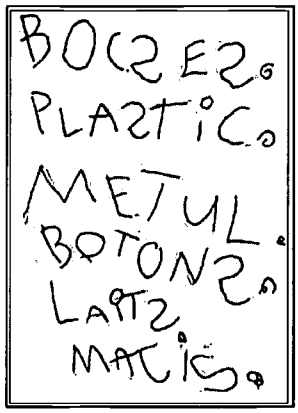


Figure 43. The children created a list of things needed to build the X-ray machine.

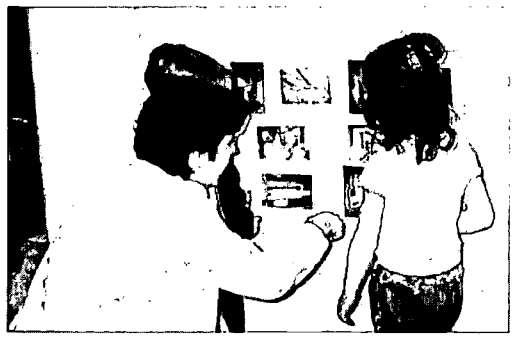


Figure 44. The children looked at the pictures taken during the field visit. They selected the part they were interested in building.

One child thought about the length of the machine and represented it with Unifix cubes. "I want the machine to be 48 Unifix cubes long." The teacher used a meter stick to measure the cubes that were lined up on the floor in order to model for the child how things can be measured in different ways. The child helped her, and the teacher said,"48 Unifix cubes is the same as 1.9 meters."

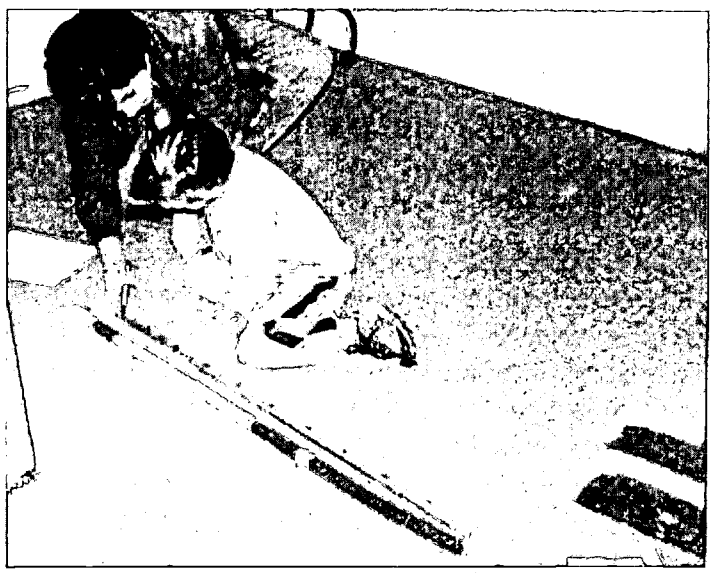


Figure 45. The teacher used a meter stick to measure the Unifix cubes a child used to represent the length of the machine.

The children selected recyclable materials and started to work on their machine. They observed the pictures closely because they wanted it to resemble the "real thing" as closely as possible. They labeled the parts of the machine and wrote down each part's purpose. The children completed this piece of work after six sessions.

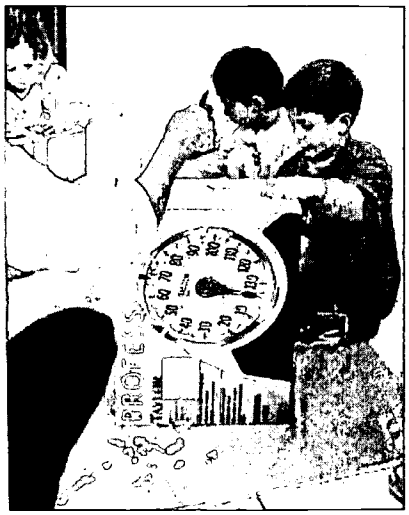
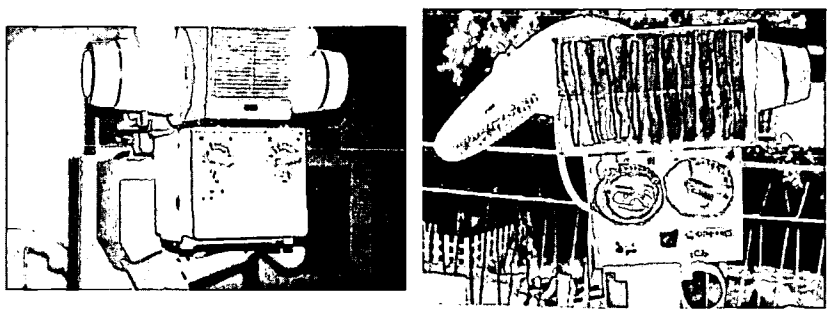


Figure 46. The children looked for boxes that matched the parts of the machine that they intended to build.

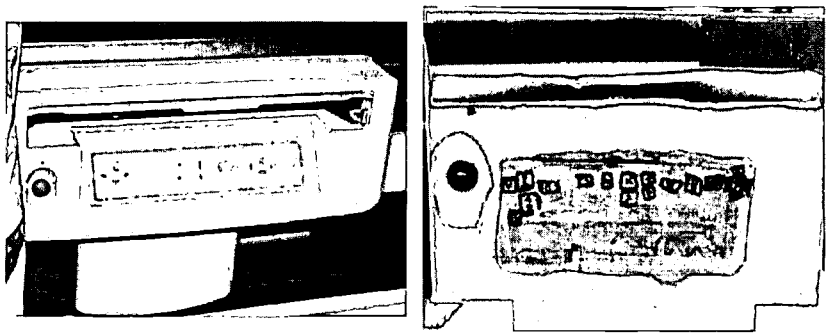
Figure 47. Dan used a hammer to add on a piece of wood in order for the machine's table to be the length that he had decided on.

Figure 48. The children completed the machine in six sessions.

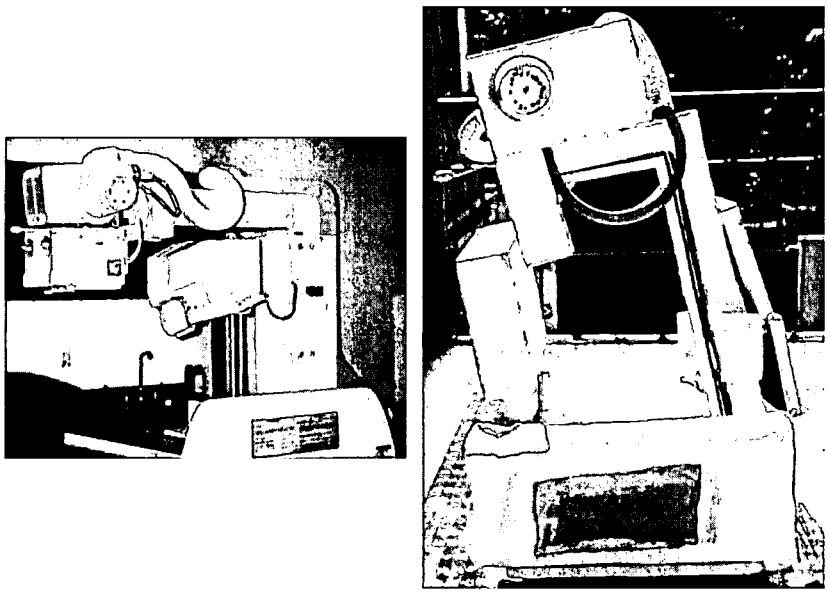
We were all amazed by the resemblance of the children's creation to a real X-ray machine.



Figures 49-50. The children wrote a label that read: "This part of the machine controls light."



Figures 51-52. The children indicated that film for the X-ray machine is introduced through the slit on the machine.



Figures 53-54. The children were very happy with their creation.

New Questions Arise: Who Has Bones?

At the beginning of the work session, the teacher held a group meeting. Sharian had brought some human bones, and she wanted everyone to see them. Several children commented that their parents had animal bones at home. The teacher encouraged the children to bring the bones to class, and she added that the bones could be displayed for everyone to see. A discussion started about whether all animals had bones, and children mentioned some animals that did and some that did not. The teacher then asked if they thought fish had bones. One child collected the data of who thought fish did or did not have bones. She used tally marks as she asked every child. Then she counted the tally marks in order to find out what most children thought. The teacher then asked,"How can we find out if a fish has bones?"

Ximena: "We can ask a vet."
Victor: "We can ask a doctor."
Valeria: "We can get a fish and open it to see."

Most children seemed very interested in the last option, and the teacher agreed to try it out.

Some children made memory drawings of what they thought was inside a fish. One child was thinking to himself for quite a while. The teacher approached him and asked, "Eddy, is something wrong?" He shook his

head to say no. "What do you think is inside a fish?" Eddy said, "a skeleton," so the teacher encouraged him to draw what he thought the fish's skeleton looked like, and the drawing in Figure 55 is what he came up with.

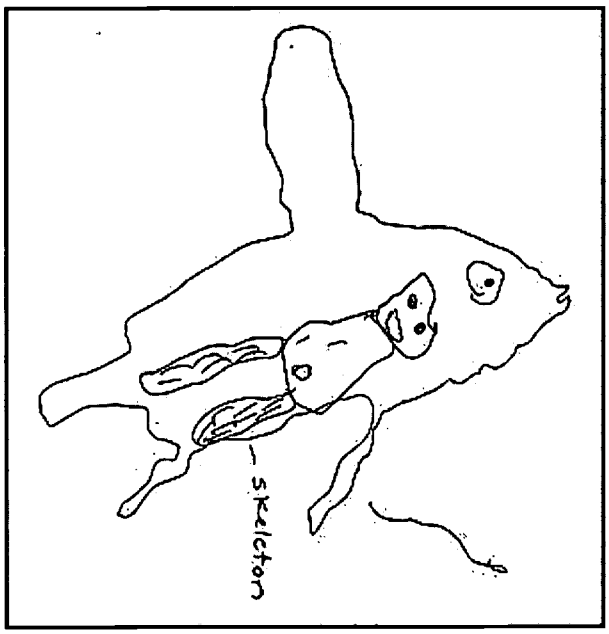


Figure 55. A child made a memory drawing of the inside of a fish.

During the next work period, the children were able to find out firsthand whether fish have bones by opening one in the science lab.

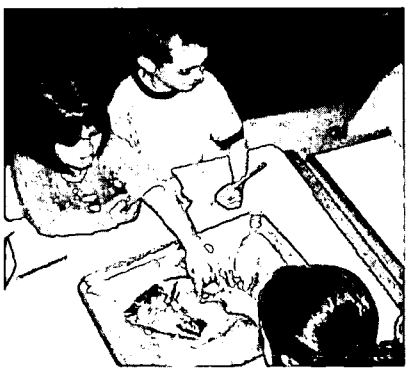


Figure 56. The children touched the bones.

Figure 57. The children looked closely at the bones and counted them to find out how many bones make up a fish's skeleton.

The children made observational drawings of the fish and wrote down the number of bones they counted.

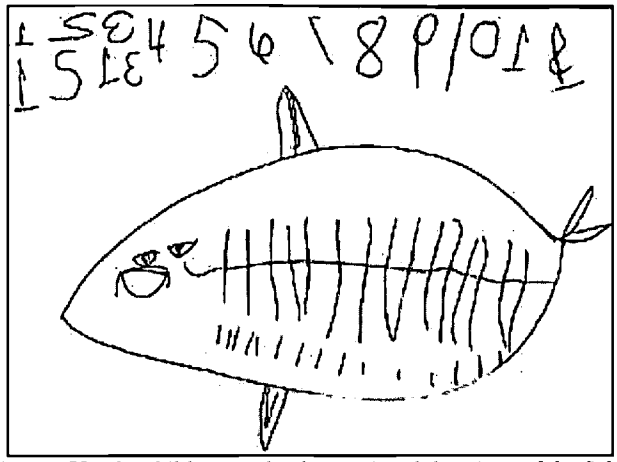


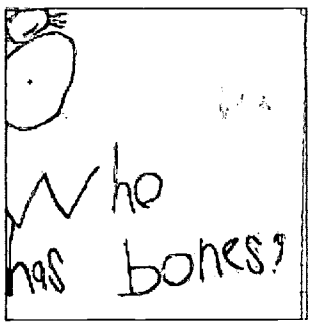
Figure 58. The children made observational drawings of the fish.

As the children continued to talk about animal bones, they brought some from home and were able to share them with their classmates. They also weighed animal bones and compared the data.

Figure 59. The children weighed a bull's bone.

Figure 60. A child showed a bone she brought from home that her grandmother used to make beef broth.

Some children decided to write a book about animals that have bones. They made it by drawing the animal's skeleton on an acetate sheet and the animal on paper, and then they made them overlap.



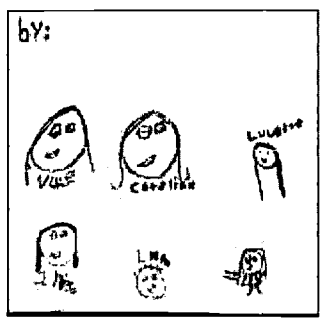


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Figure 61. The cover of a book the children made about animals that have bones.

Figure 62. Author's page of the book.

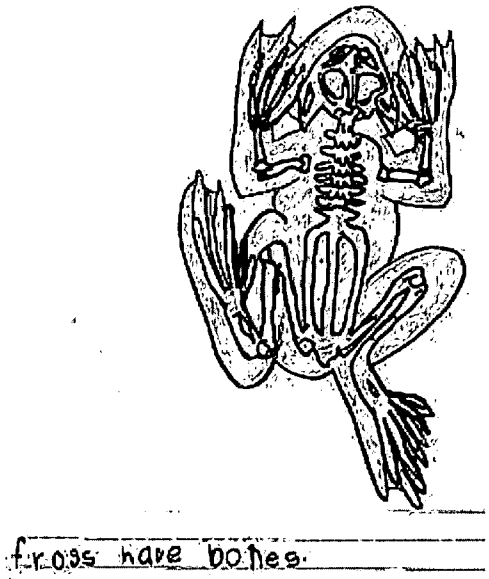

Figure 63. One of the pages in the book.

Several children were still insisting on finding answers to some of their previous questions that were unanswered so we decided it was time to ask an expert to come to our classroom. The teacher talked to an orthopedist and asked him to focus on answering the child's questions that she posed to him prior to his visit.

- What is a cast made of?
- What colors of casts are there?
- What happens if a cast gets wet?
- How do you get a cast off?
- How long does it take for a cast to get hard?
- How are bones held together?
- How can we take care of our bones?
- Why do we have bones?
- What is each part of the X-ray machine for?

Figure 64. Andrea volunteered to have a cast placed and removed from her arm.

Figure 65. The doctor showed the children the different colors of casts.

The orthopedist placed a cast on a child's arm. The children looked at a clock to find out how much time it took for the cast to get hard. The orthopedist also explained how we can take care of our bones. He answered their questions, and they also got a chance to look at his tools.

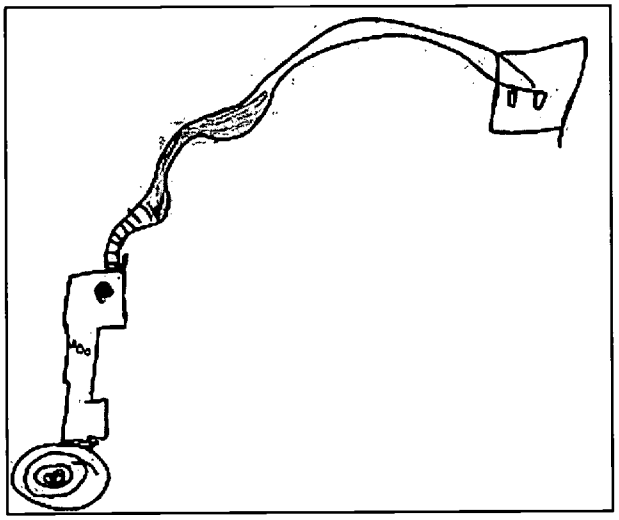

Figure 66. "This is the saw the doctor used to remove the cast from Andrea's arm" field sketch.

A New Area of Interest: Taking Care of Our Bones

The day after the physician's visit, a child brought a helmet from home. He explained that he used it when he rode his bike and that it helped him take care of his skull. During the next few days, several children brought in diverse gear that protected their bones against injuries. They tried on the gear and used the equipment for role-play.

Figure 67. The children played with equipment that protected their bones.

While the children were role-playing with the equipment, we were surprised by an unexpected visitor. She was one of our former preschool children who had a broken leg. We invited her into our classroom, and she shared her personal story with the children. She also allowed the youngsters to use her crutches.

Figure 68. One of our former preschool children shared the story of her broken leg.

Figure 69. The children tried the girl's crutches.

Because the children's interest focused on how to take care of their bones, the teacher brought in several food items that contain calcium. They cooked macaroni and cheese and tasted different dairy products.

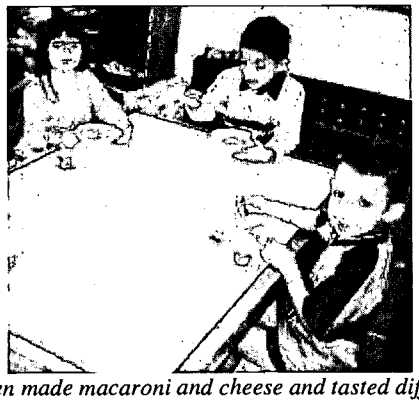

Figure 70. The children made macaroni and cheese and tasted different dairy products.

A group of children decided to become calcium detectives, and they looked for the word calcium on labels and boxes of food products to determine whether they were good for their bones.

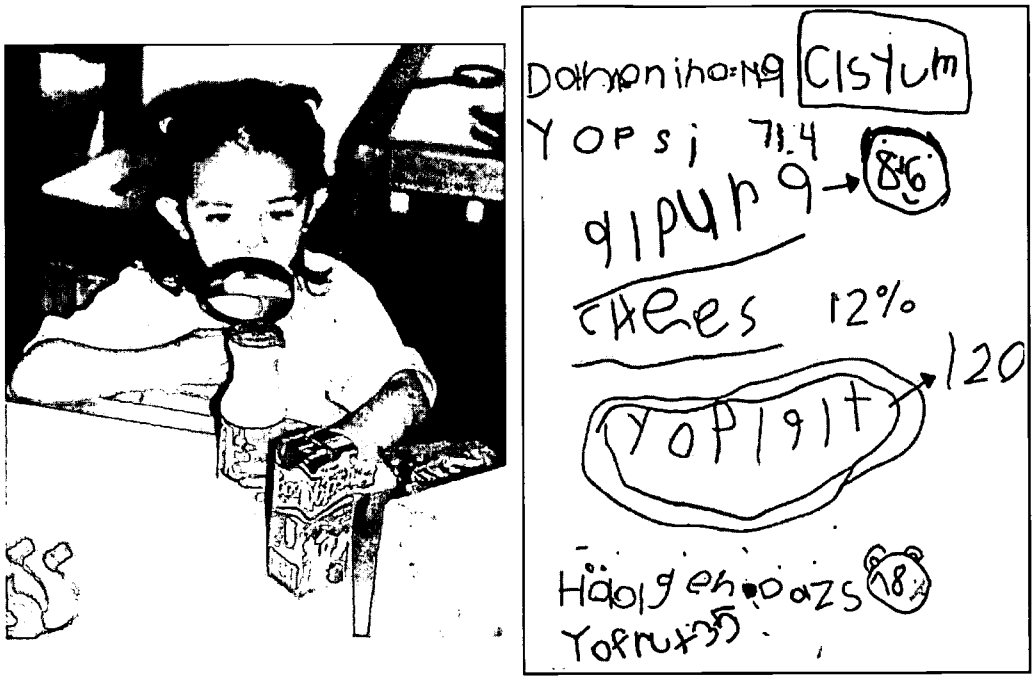

Figure 71-72. A group of children wrote a list of products that contain calcium.

The calcium detectives thought that it would be a good idea to tell their classmates about products they could eat to make their bones strong. They designed "Strong Bone Menus," which they shared with their peers. The menus were later displayed in the classroom for everyone to see.

Figure 73. The children designed a "Strong Bone Menu."

The whole class contributed to writing an original poem about bones, which all of the children learned.

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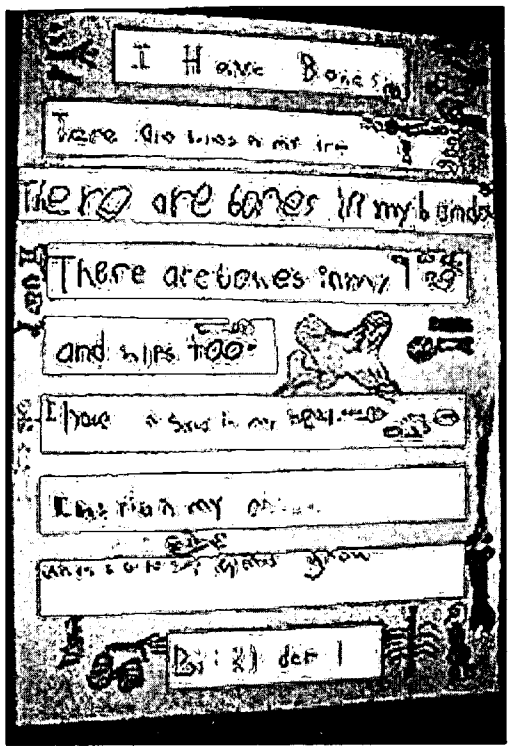


I Have Bones

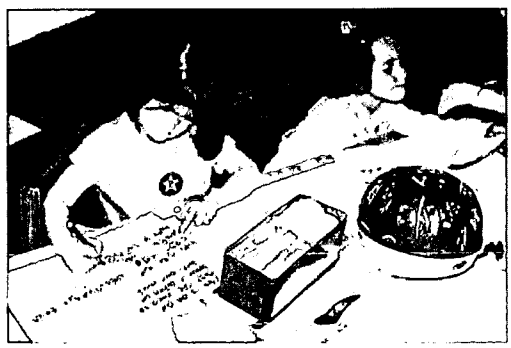
There are bones in my arm.
There are bones in my hands.
There are bones in my leg
and hips too.
I have a skull in my head.
I have ribs in my chest.
When I go to sleep my bones grow.

Figure 74. The class wrote a poem about bones.

Originally, the last line of the poem read "When I go to sleep my bones rest," but one of the children argued that while we sleep our bones grow. The rest of the class agreed to alter the words.

Getting Ready for the Bone Museum

Because the children had brought so many items related to the topic and had done so much work, the teacher started to wonder about how she could display everything. She came up with the idea of putting together a bone museum. The children received her suggestion with much enthusiasm, and they began to think about the work that needed to be done and the items that needed to be included. After a few discussions, they formed committees in order to divide the workload. The different groups were in charge of writing labels for the displays, designing the invitation, making a big sign with the title of the exhibit, taking care of snacks, and putting together the display cases.



Figures 75-76. The children wrote labels and explanations describing the different items displayed.

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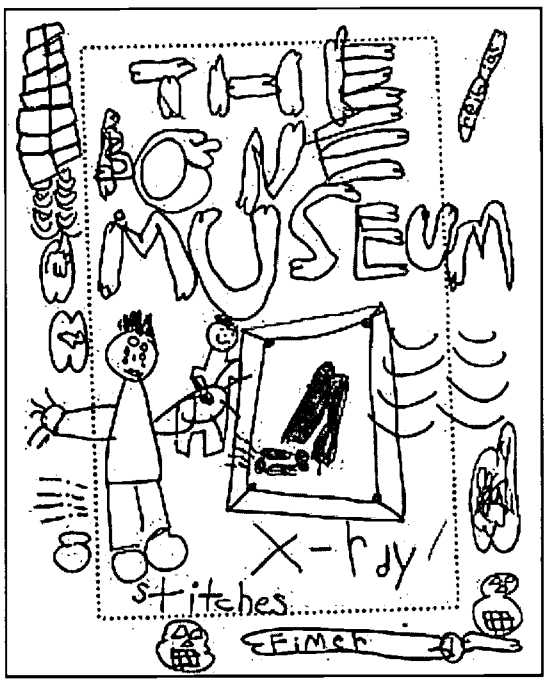
Figure 77. A group of children worked on a sign for the exhibit.



Figures 78-79. Lucette designed the invitation that was sent to parents. She attempted to write every letter in the shape of a bone.

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Figure 80. The teacher and one of our mothers helped the children make bone-shaped cookies to serve as snacks during the exhibit.

Figure 81. The children set up display windows using wooden blocks and a large piece of transparent plexiglass.

Phase 3: The Bone Museum

After six weeks of intense and productive work, our children's parents came to school to share with their children all that the children had learned about bones and to see their work.

The children sang a song and performed a dance about bones. Next, the teacher shared pictures and samples of work through a PowerPoint presentation, which she had used to document the project since its beginning.

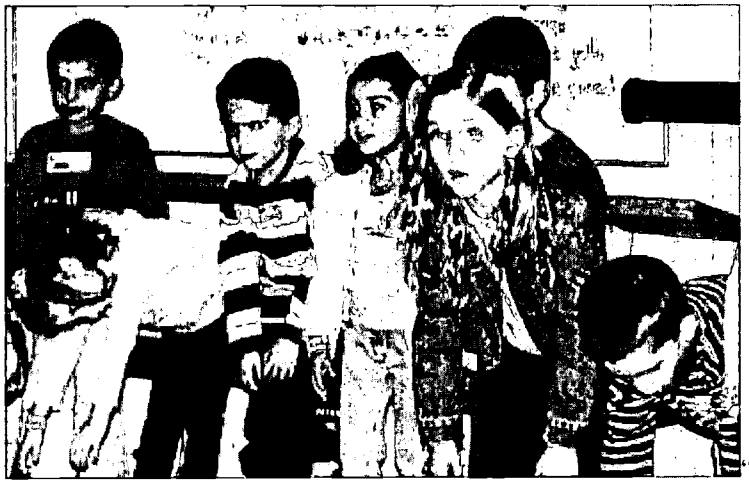

Figure 82. Every child wore a badge that read "Bone Expert." The children greeted their parents by performing a bone dance and singing a song.

After the PowerPoint presentation, the Bone Experts shared their knowledge with their parents by answering the parents' questions. They were also able to ask the audience questions, and they had a lot of fun when their moms and dads did not know the answers.

Figure 83. The children answered their parents' questions.

Parents were then invited to visit the Bone Museum with their children.

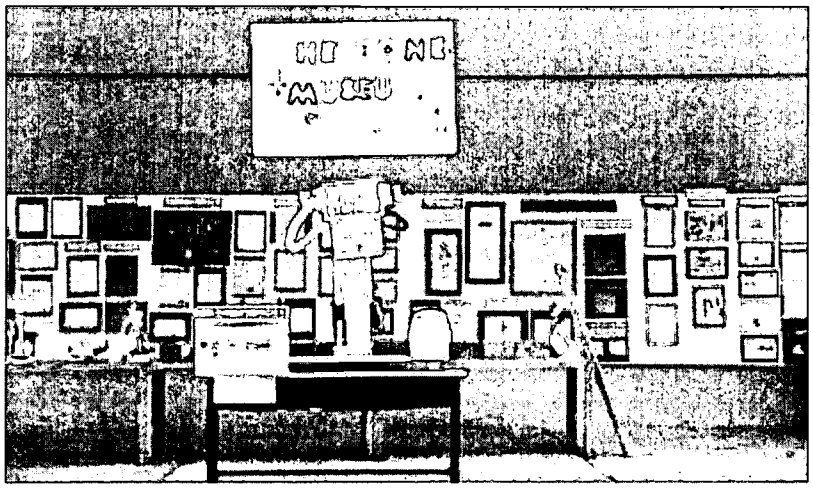

Figure 84. The Bone Museum.

Figure 85. Children's work was displayed in a sequential order of things that happened throughout the first two phases of the project.

Figure 86. Guests enjoyed the bone-shaped cookies made by the children.

Figure 87. Parents visited the displays.

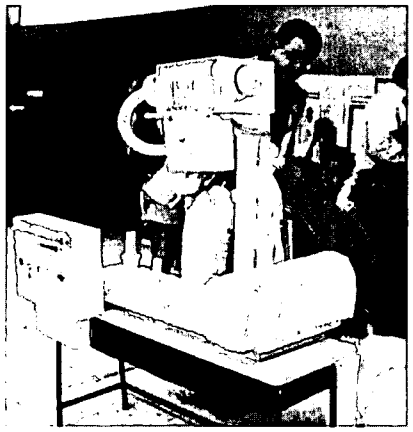

Figure 88. Carlos explained to his father how the X-ray machine worked.

Figure 89. We set up a dark room where visitors could look at X-rays.

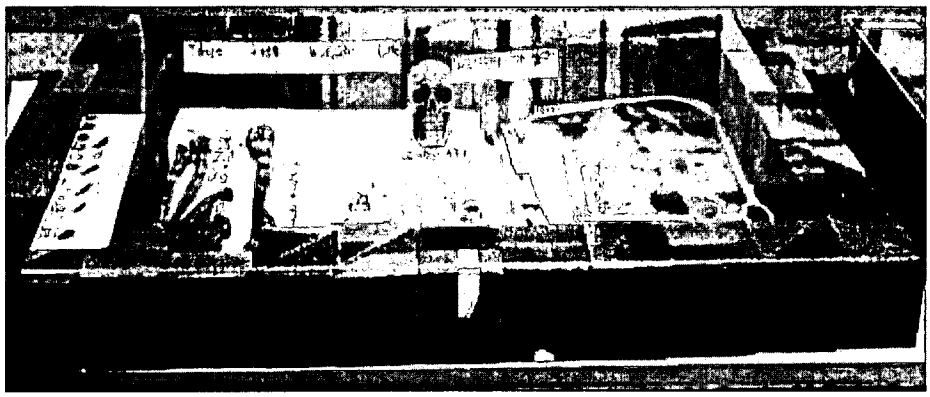

Figure 90. This display case included human and animal bones. The children specified which were real and which were made out of plastic.

Conclusion

I had tried to do several projects in our school during the previous years. My knowledge about the Project Approach was based on reading all the books I could find on this subject. I had heard a few lectures at the National Association for the Education of Young Children (NAEYC) conferences, and I subscribed to the Project-L listserv. Because I am the principal of the Early Childhood Department at my school, it is my duty to motivate and instruct my teachers in order to provide the best education possible for our children. I knew that project work was the option I wanted them to follow. I tried to communicate my enthusiasm and my knowledge to my teachers as best as I could. A few teachers were successful, others were not, and some never concluded the projects they started. Many of my teachers argued that it was impossible to carry out project work in a second language with such young children, and they gave up even before trying. Our energy was renewed this year after Dr. Sylvia Chard came to teach a three-day workshop at our school. My teachers were excited, and I felt better prepared to guide them.

One of the teachers wanted to start doing project work right away, and together we carried out the Bone Project. At the beginning, our children had difficulty asking questions, and we wondered whether this difficulty was caused by the language barrier. However, as the study progressed, we understood that the children were not used to inquiring because most of the information had always been given to them. Once we did enough modeling, they started wondering and asking all sorts of questions. They would mix in words in Spanish if they did not have enough vocabulary in English, but they were able to express their thoughts and their ideas quite clearly. We now know that project work can certainly be carried out in a second language with young children.

Throughout the Bone Project, the kindergarten children were able to apply basic skills to solve real-life problems. They not only touched upon the requirements for their age and grade level, they surpassed our expectations of the knowledge they gained and the skills they acquired.

This project made a difference at our school because the children's self-motivation, excitement, interest, willingness to work hard, and their display of creativity and problem-solving abilities amazed other teachers who were reluctant to try project work.

Families had not been informed that we were working in a different way. Nevertheless, all of them knew that something had changed because the interest their children showed for this topic was reflected at home. Some parents shared these comments with us after the conclusion of the project:

> As parents, we had always asked our son what he had done in school. His answer had always been the same—"nothing" or "I played"—up until the time when his class started learning about the topic of bones. We knew what he was doing at school right away because he would come

home and talk about it. He got the whole family involved by sharing his knowledge and asking all kinds of questions. He spent time at home looking for meaningful things related to the project that he could take to school. Our son was extremely motivated, and we were amazed to see all that he had learned. (Fernando's parents)

I've always enjoyed sharing what my child does at school, but I was truly surprised when I saw Ines and her classmates take on a topic from so many different perspectives. They applied many skills: musical, manual, analytical, deductive, observational, scientific, culinary, and linguistic. This is the kind of education I want for my child: learning by pursuing her interests and not by memorizing irrelevant facts. (Ines' mother)

Acknowledgments

I wish to express my gratitude to Dr. Sylvia C. Chard for all that she has taught me and for her guidance and support, which enabled me to fully understand and fall in love with the Project Approach. I want to thank Ms. Ivette Alkón, the kindergarten teacher who had the vision and interest to pursue the study of this topic.

Author Information

Yvonne Kogan (M.E.) is currently the principal of the Early Childhood Department of Eton School in Mexico City and has been for the past 13 years. Her interests include project work and children's artistic development.

Yvonne Kogan
Plan de Barrancas 96
Col. Lomas de Chapultepec
c.p. 11000
Mexico D.F.
Mexico
Email: yvonnekogan@att.net.mx

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Un estudio de huesos

Yvonne Kogan
Colegio Eton, Ciudad de México

Sinopsis

El presente artículo describe un estudio de huesos que realizaron niños de 5 anos de edad en una escuela bilingüe ubicada en la Ciudad de México. El artículo describe el proceso y muestra los resultados que obtuvieron los niños durante las tres fases del proyecto por medio de fotografías y otras formas en que se documentó el trabajo de los niños. El artículo concluye con reflexiones tanto de la autora como de los padres de los niños.

Antecedentes

El Colegio Eton es una institución bilingüe (español-inglés) que se ubica en la Ciudad de México. El alumnado de la escuela consiste principalmente de niños mexicanos que no hablan inglés en casa. En el Departamento de Preescolar, que atiende a niños de 2 a 6 años de edad, la enseñanza se imparte exclusivamente en el idioma inglés. La enseñanza bilingüe propiamente dicha comienza a partir de 1° de primaria y continúa hasta 6° de bachillerato (de los 7a los 19 años de edad). Debido a que nuestros niños más pequeños apenas comienzan a estar expuestos al idioma inglés, muchos maestros consideran que sería virtualmente imposible para estos pequeños mantener discusiones o hacer preguntas en un lenguaje que están aprendiendo. Sin embargo, este artículo demuestra que se puede realizar el trabajo de proyecto con niños pequeños que están siendo educados bajo un programa de inmersión total en un segundo idioma.

Proyecto emergente y planeación preliminar

Durante el mes de septiembre, los alumnos de kinder habían estado trabajando sobre el tema del cuerpo humano. Ellos empezaron a hablar sobre sus experiencias personales con los doctores y a relatar ocasiones en que se habían lastimado, expresando un interés particular por los accidentes y las fracturas de huesos.

La maestra trajo al salón de clases varias radiografías, un par de muletas y algunos otros artículos como rodilleras y férulas neumáticas para que los niños pudieran usarlas para hacer dramatizaciones. Ella quería ver si el interés de los niños por este tema era lo suficientemente intenso como para iniciar un estudio a mayor profundidad del mismo. La maestra exploró la posibilidad de invitar a un experto al salón de clases, así como la posibilidad de organizar una visita al departamento de radiología de una clínica u hospital. Todo se dio como se esperaba y entonces, la maestra decidió abordar el estudio de este tema para desarrollar un proyecto.

Figura 1. Liam se probó una férula neumática.

Figura 2. Teli hizo de cuenta que se había lastimado el brazo.

Fase 1

La maestra y la directora hablaron sobre los intereses de los niños y las conversaciones sostenidas por los niños durante las dramatizaciones, mismas que la maestra había anotado mientras recorría el salón de clases con un cuaderno de notas en la mano. Juntas, ellas hicieron una red de conceptos para visualizar las maneras posibles de desarrollar el tema.

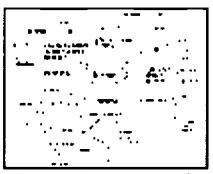

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Figura 3. La maestra y la directora elaboraron una red de conceptos sobre los huesos con base en las conversaciones de los niños.

La directora fue al salón de clases y les contó cómo se había lastimado el tobillo. Ella explicó por qué tuvo que usar una férula neumática y les enseñó cómo ponérsela.

Figura 4. La directora les contó cómo se había lastimado el tobillo.

Los niños comenzaron a relatar historias personales sobre familiares o amistades que se habían fracturado un hueso. Teli, una de las niñas del grupo, les contó a sus compañeros sobre una ocasión en que se fracturó la clavícula cuando se cayó del carrito del supermercado.

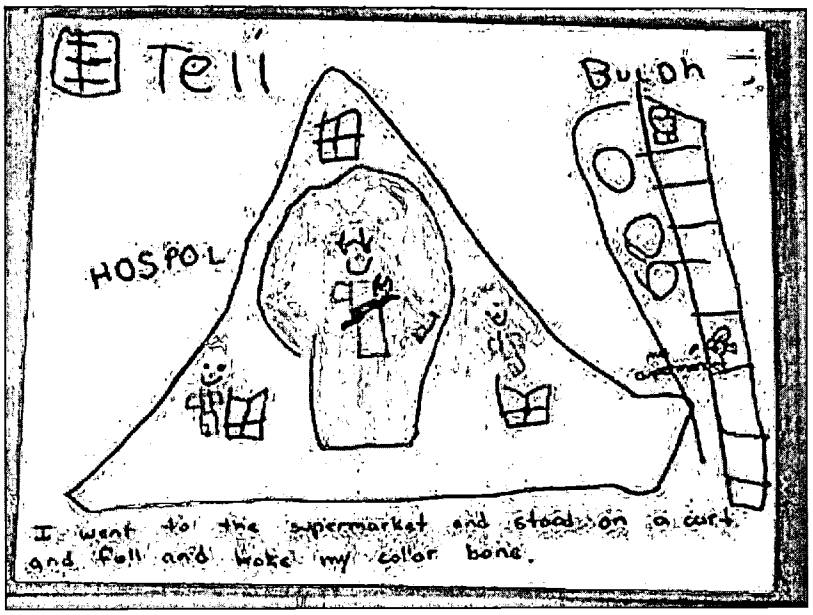

Figura 5. Teli contó una historia sobre una ocasión en que se fracturó la clavícula.

Los niños hicieron dibujos de memoria de sus huesos y luego mostraron sus dibujos a sus compañeros durante una junta de grupo.

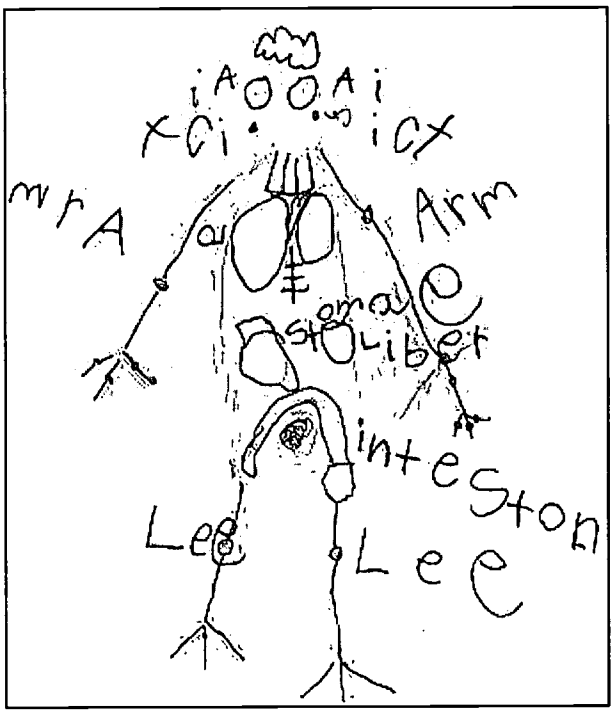

Figura 6. Los niños hicieron dibujos de memoria de sus huesos.

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Figura 7. El cuerpo por fuera.

Figura 8. El cuerpo por dentro.

Los niños empezaron a hacer preguntas sobre los huesos y la maestra anotó sus preguntas en una cartulina que después pegó en el pizarrón del salón de clases.

- ¿Cuántos huesos tenemos?
- ¿Qué hay adentro de nuestros huesos?
- ¿Cómo sabe un doctor que un hueso está roto?
- ¿Qué cosas usa un doctor?
- ¿Los huesos de las personas son iguales a los huesos de los perros?
- ¿Cómo es un aparato de rayos X?
- ¿Cómo funciona un aparato de rayos X?
- ¿Cómo se endurece un yeso?
- ¿Hay muchos colores diferentes de yeso?
- ¿Qué pasa cuando se moja un yeso?
- ¿Cómo se puede quitar un yeso una persona?
- ¿Qué tipo de zapatos usamos cuando tenemos el pié enyesado?
- ¿Cuántos niños tienen huesos rotos?
- ¿Cuáles animales tienen huesos?
- ¿Cómo podemos cuidar nuestros huesos?

Una niña trajo una radiografía de su perro y la comparamos con una radiografía de huesos humanos. Luego hicimos un diagrama de Venn para registrar los datos.

Figura 9. Los niños compararon la radiografía de un perro con una radiografía de huesos humanos.

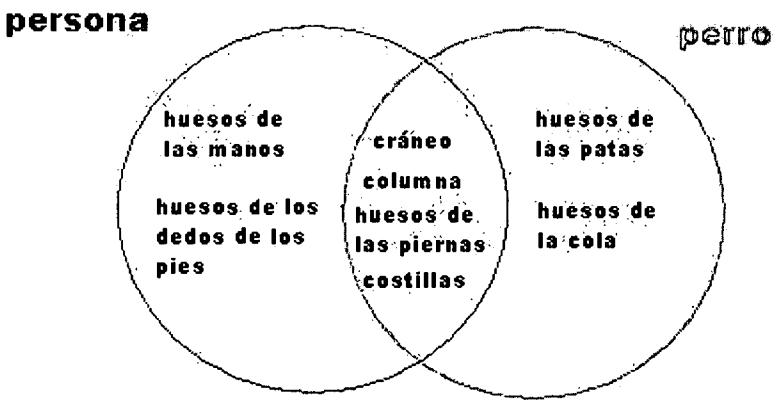

Figura 10. La maestra hizo un diagrama de Venn con la información que los niños le dictaron.

La directora trajo algunos huesos de pollo y los niños los observaron a través de una lupa. Luego, ellos hablaron de sus predicciones en cuanto a lo que ellos pensaban que había adentro de los huesos e hicieron y etiquetaron dibujos de huesos.

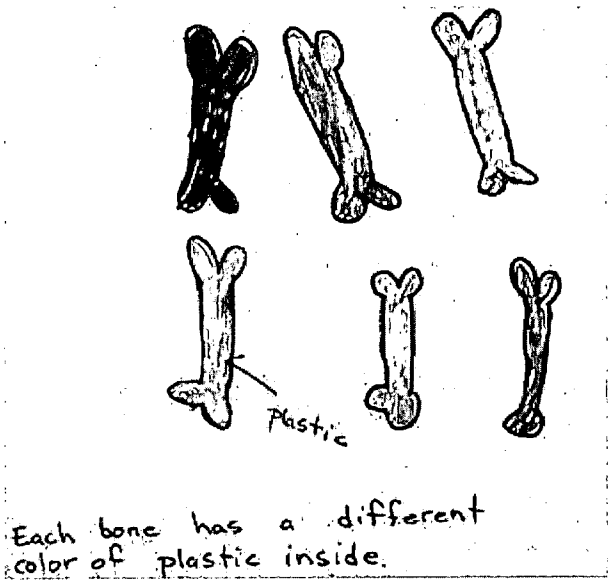

Figura 11. Algunos niños predijeron que "cada hueso está hecho de un plástico de diferente color".

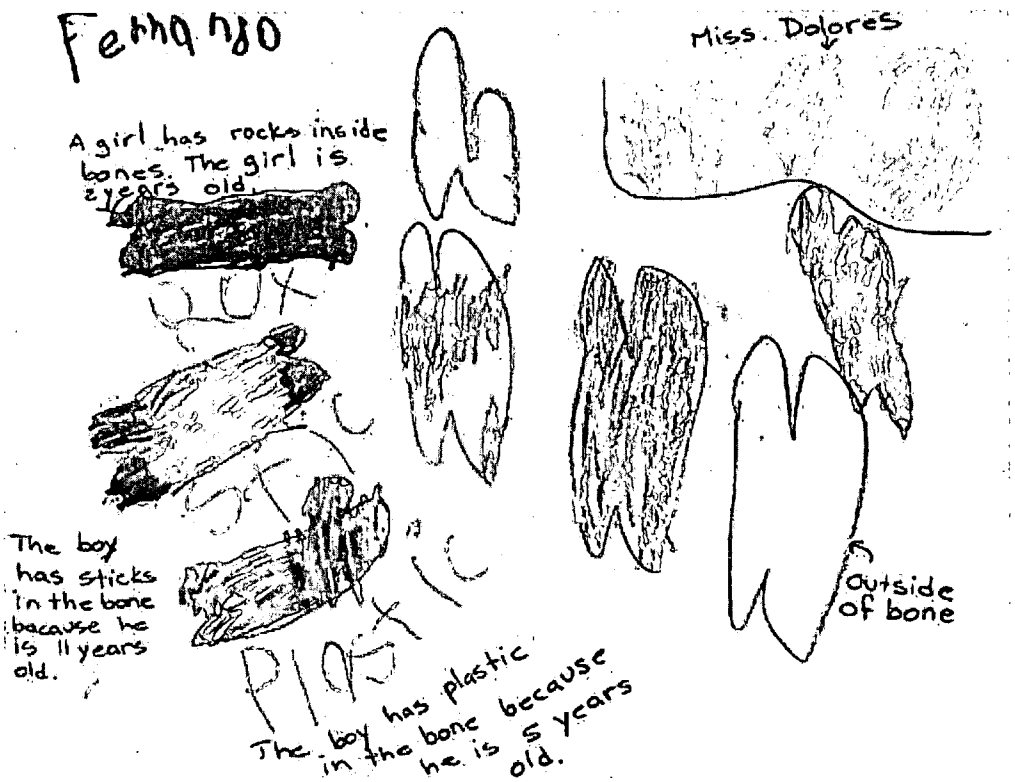

Figura 12. Algunos niños pensaban que lo que hay adentro de los huesos cambia a medida que vamos creciendo: "Una niña tiene piedras adentro de los huesos porque tiene 2 años de edad. Un niño tiene plástico adentro de los huesos porque tiene 5 años de edad. Un niño tiene palos adentro de sus huesos porque tiene 11 años de edad".

Después de un par de días, rompimos los huesos de pollo para abrirlos y los pusimos debajo de una lupa. Los niños los examinaron cuidadosamente e hicieron un dibujo por observación. Más tarde, compararon sus predicciones contra lo que habían observado. Ellos disfrutaron enormemente esta actividad y cuando hablaron de sus hallazgos durante la junta de grupo, todos los niños se rieron de sus predicciones.

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Figura 13. Un niño observó el interior de los huesos de pollo a través de una lupa.

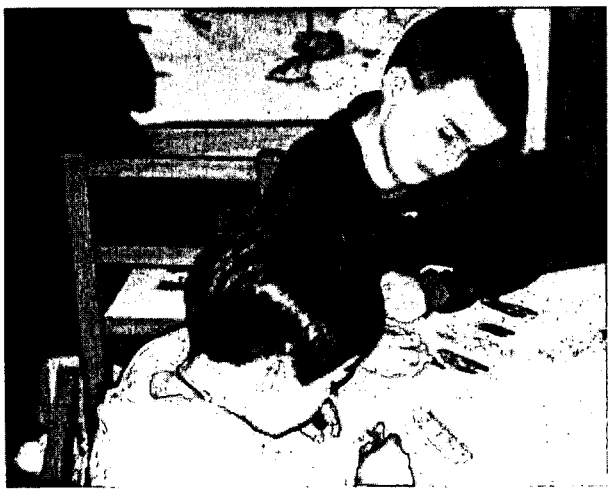


Figura 14. Los niños hicieron dibujos por observación del interior de un hueso de pollo.

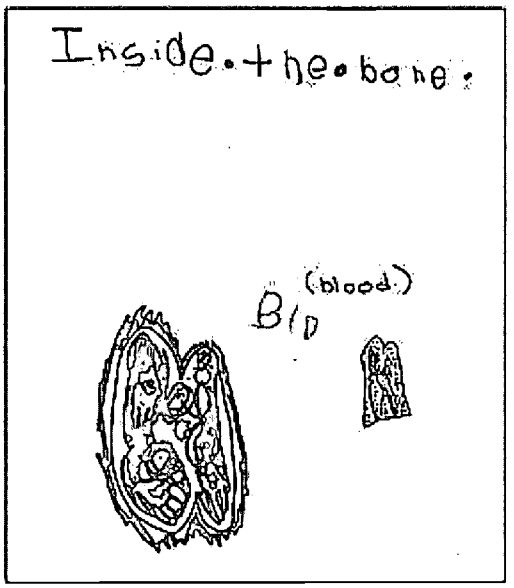


Figura 15. Dibujo por observación.

Un grupo de niños mostró interés por averiguar cuántos alumnos de la escuela tenían algún hueso roto en ese momento. Ellos diseñaron una manera de hacer una encuesta y encuestaron a todos los grupos. Los niños descubrieron que había una niña en la escuela que tenía el brazo roto.

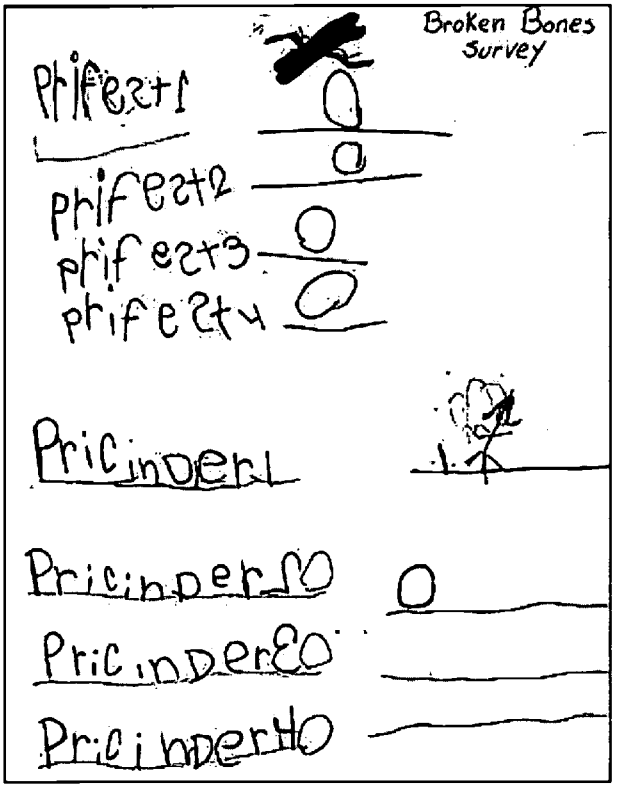


Figura 16. Como muestra este formato de encuesta, los niños encontraron una niña con el brazo roto en el grupo de pre-kinder 1.

Fase 2

Para prepararse para la visita, los niños predijeron qué era lo que ellos creían que iban a ver en la clínica. La maestra anotó las predicciones de los niños en una cartulina que pegó en el pizarrón del salón para que ellos pudieran revisarlas a su regreso. La mayoría de los niños mostraron un especial interés por ver un aparato de rayos X. Antes de salir a la visita, ellos predijeron qué tan larga sería la unidad de rayos X. Las medidas del aparato se estimaron calculando cuántos niños se tendrían que alinear para abarcar la longitud de la unidad de rayos X.

¿Qué tan largo será el aparato de rayos X?	
Lucette	3 niños
Patricio	4 niños
Victoria	6 niños
Dan	8 niños
Sharian	9 niños
Isabela Liam Max Jimena	10 niños
Carolina	100 niños

Figura 17. Los niños se formaron para predecir la longitud del aparato de rayos X.

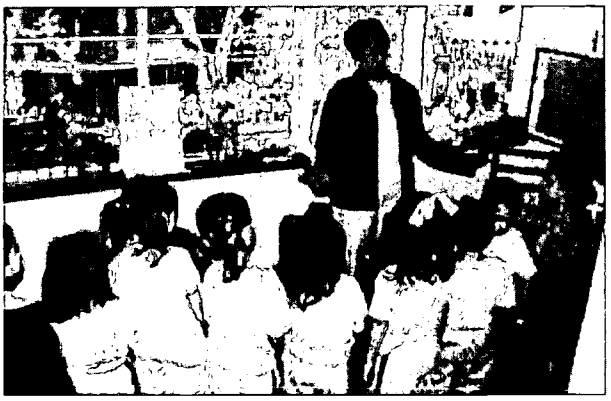
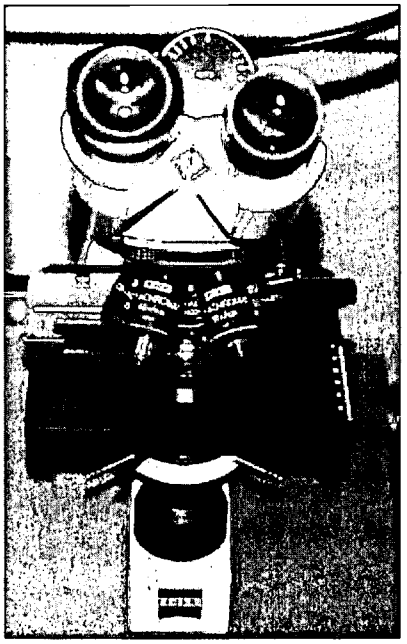


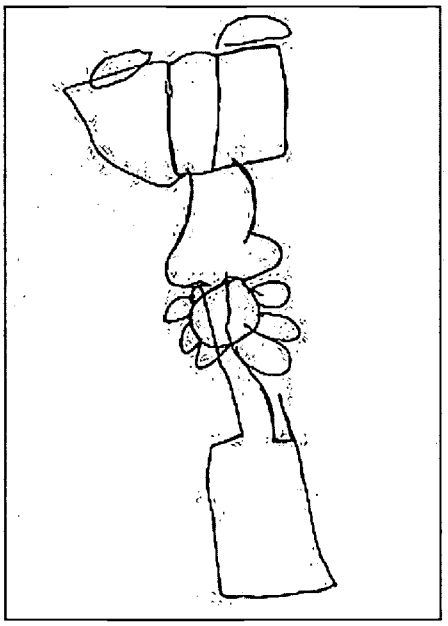
Figura 18. Los niños predijeron lo que verían durante la visita.

Cuando llegamos a la clínica, el abuelo de Teli, un doctor que trabaja ahí, ya nos estaba esperando en el estacionamiento. Primero nos llevó a visitar el laboratorio. Ahí, los niños pudieron ver muestras de sangre a través de un microscopio. Los niños recordaron que lo que hay adentro de sus huesos es médula ósea. La maestra comentó que las células de la sangre se producen adentro de nuestros huesos.

Figura 19. Los niños vieron muestras de sangre a través de un microscopio.

Algunos niños hicieron dibujos por observación del microscopio y de lo que vieron a través del mismo.





Figuras 20-21. Fotografía y dibujo en campo de un microscopio.

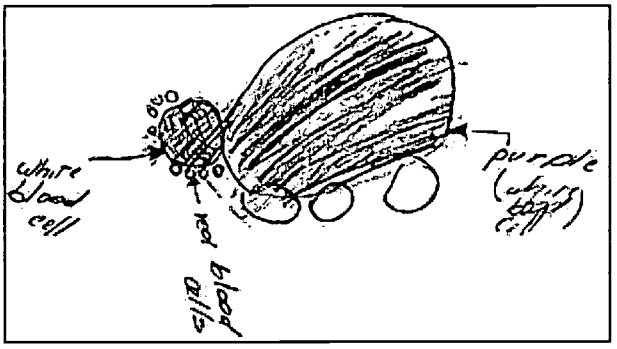
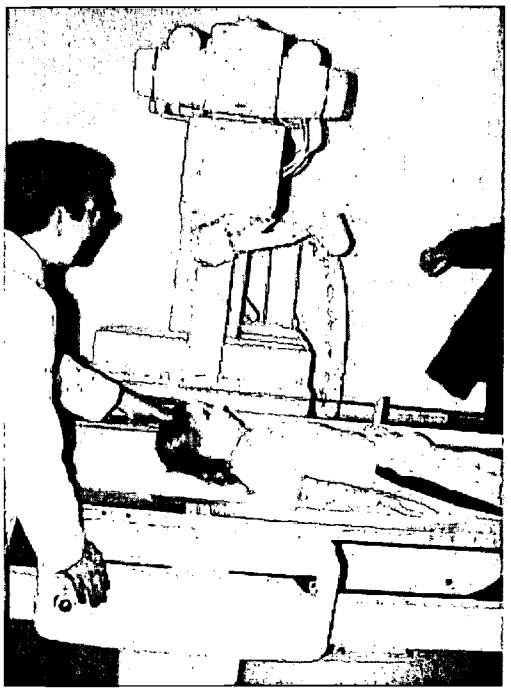


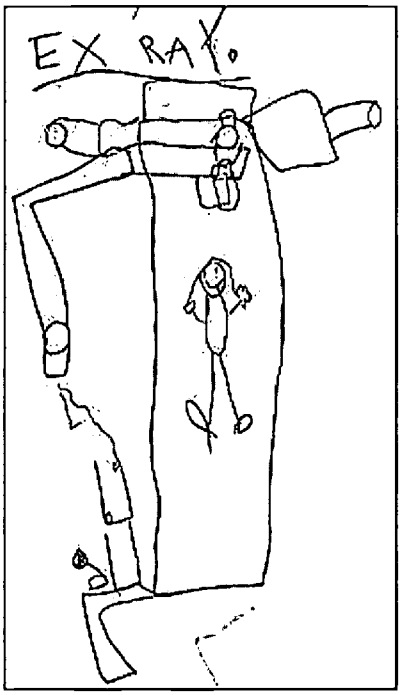
Figura 22. "Esto es lo que yo vi a través del microscopio".

Luego, fuimos al Departamento de Radiología. Los niños tuvieron la oportunidad de ver el monitor de una computadora donde los doctores ven las radiografías. También vimos imágenes de cómo se ven los distintos huesos. Esta experiencia despertó el interés de algunos niños, quienes decidieron tomar algunas notas como parte de su trabajo en campo.

Figura 23. Esta niña hizo un dibujo en campo de la computadora, del doctor y de lo que se veía en el monitor.

Luego, fuimos a ver el aparato de rayos X. El doctor nos enseñó cómo funciona la unidad y cómo se toman las radiografías.





Figuras 24-25. Fotografía y dibujo en campo de Teli en el aparato de rayos X.

El doctor dejó que los niños se quedaran un rato en la sala de rayos X para que pudieran hacer dibujos del aparato y de la sala misma y también para que pudieran hacer anotaciones sobre lo que habían observado.

Figura 26. Los niños hicieron dibujos y tomaron notas.

Figura 27. Dibujo en campo realizado durante la visita.

Luego, los niños se sentaron en la sala de rayos X y el doctor respondió las preguntas que ellos le habían dictado a la maestra en la escuela.

Los niños midieron la mesa del aparato de rayos X alineándose junta a ella para ver si sus predicciones habían sido acertadas. Carolina, quien había predicho que el aparato mediría 100 niños de longitud, dijo: "Lo que dije en la escuela fue realmente tonto, ahora sé que el aparato sólo mide nueve niños de largo".

Figura 28. Los niños midieron la mesa del aparato de rayos X alineándose junto a ella.

Después de la visita, los niños contaron historias sobre las experiencias que tuvieron durante su práctica de campo. Ellos hicieron una reseña de lo que vieron y compararon su narración de la visita con las predicciones que habían hecho antes de la misma. Llegaron a la conclusión que sí vieron personas enfermas, doctores, enfermeras y el aparato de rayos X, pero que no vieron consultorios ni instrumentos.

Después de la reseña, los niños hicieron anotaciones en un diario para expresar qué fue lo que más les interesó de la visita.

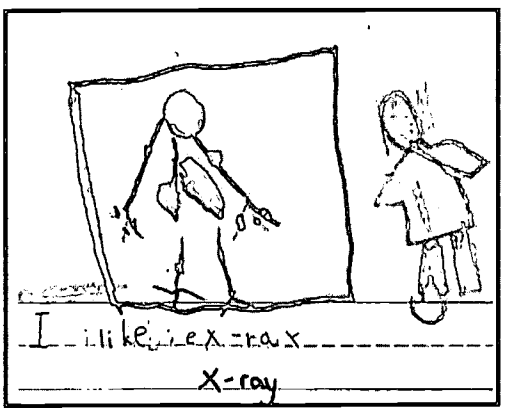


Figura 29. Oración escrita en el diario después de la visita.

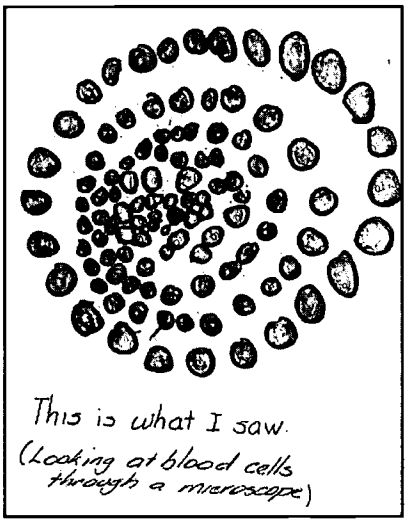


Figura 30. Dibujo de memoria hecho después de la visita.

Al día siguiente, durante nuestra junta de grupo de cada mañana, nos dimos cuenta que había mucho por hacer. Los niños y la maestra hicieron sugerencias respecto del trabajo que había que realizar. Formamos varios grupos y los niños escogieron en qué querían trabajar.

Representación de los conocimientos

Escribirle una nota de agradecimiento al abuelo de Teli (el doctor que nos atendió en la clínica). Un grupo de niños habló sobre la visita y sobre lo que querían escribir. Algunos escribieron sobre los huesos y el aparato de rayos X y otros hicieron dibujos.

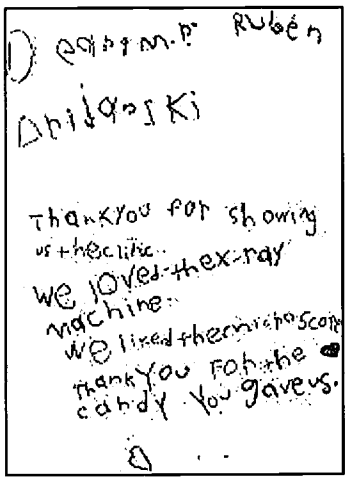


Figura 31. Los niños le escribieron una nota al doctor para darle las gracias.

Figura 32. Los niños escribieron o hicieron dibujos sobre su experiencia.

Convertirse en expertos en huesos. Algunos niños mostraron interés en averiguar los nombres de los huesos y el lugar en que se encuentran dentro del cuerpo. Ellos trabajaron en parejas y etiquetaron un diagrama del esqueleto, buscando en libros la información que necesitaban. Cada uno de los niños se aprendió algunos nombres y compartió sus conocimientos con el resto del grupo al final del día, cuando cada equipo reportó en qué había trabajado durante la sesión.

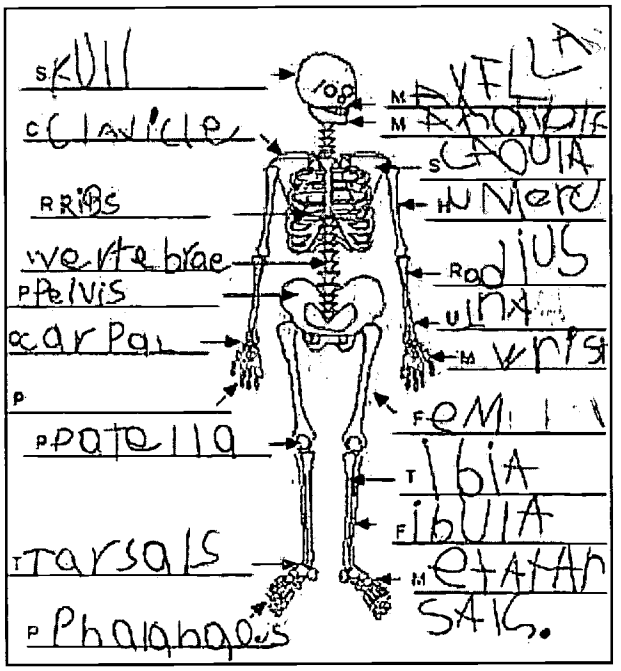


Figura 33. Los niños etiquetaron un diagrama del esqueleto.

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Un grupo de expertos en huesos quiso averiguar la longitud de diferentes huesos y se dieron a la tarea de medirlos usando cubos *Unifix*. Algunos niños midieron el fémur, otros midieron el húmero, otros el radio y así sucesivamente. La maestra les enseñó cómo podían usar una regla para medir la longitud de sus propios huesos.

Figura 34. Los niños midieron la longitud de los huesos usando cubos Unifix.

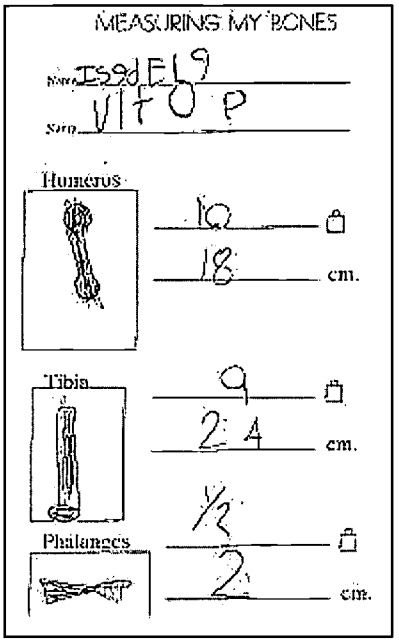


Figura 35. Los niños anotaron la longitud de los huesos en cubos Unifix *y en centímetros.*

Los niños averiguaron cuáles son los huesos más pequeños y más grandes que hay en el cuerpo, así como cuántos huesos conforman el esqueleto humano.

Los niños de un equipo hicieron dibujos por observación de fotografías de esqueletos que encontraron en libros.

Figura 36. Comparación del primer dibujo de memoria y el dibujo por observación hechos por la misma niña.

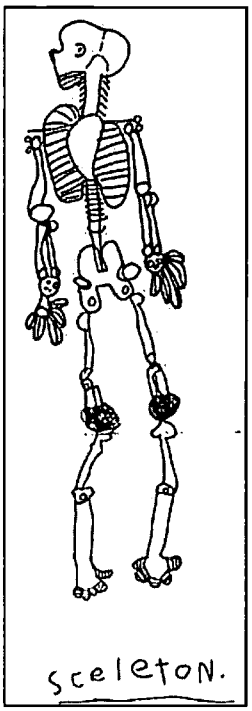


Figura 37. Dibujo por observación.

Construcción de huesos. Otro equipo de niños primero dibujó un plano grande de lo que quería hacer. Este plano mostraba la parte interna y la parte externa de un hueso. Ellos etiquetaron las diferentes partes de un hueso, incluyendo palabras como médula ósea y glóbulos rojos.

Figura 38. Un equipo de niños dibujó la parte interna y la parte externa de un hueso.

Luego, los niños decidieron cuál hueso querían construir, seleccionándolo de un diagrama que observaron. La maestra anotó sus nombres junto a los huesos que escogieron para que les sirviera de referencia visual mientras estuvieran trabajando.

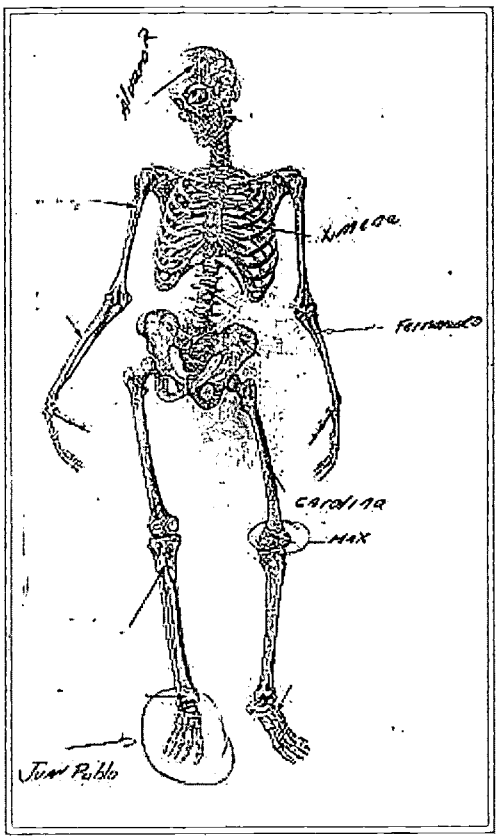


Figura 39. La maestra anotó los nombres de los niños junto al hueso que querían investigar.

Los niños escogieron las cosas que necesitarían y comenzaron a construir diferentes huesos. Usaron materiales reciclados para construir la parte externa del hueso y esponja para representar la parte interna de los huesos. Luego pintaron sus creaciones y las etiquetaron. Este equipo de niños trabajó en esto durante cuatro sesiones, hasta que terminaron sus huesos.

Figura 40. Juan Pablo construyó el pie usando tubos de cartón y tenedores de plástico.

Figura 41. Una de nuestras mamás le ayudó a Álvaro a construir un cráneo.

Figura 42. Estos niños mostraron sus creaciones a sus demás compañeros del salón. Los pusieron encima de los huesos que pretendían construir.

Construcción de un aparato de rayos X. Algunos niños observaron las fotografías que tomaron del aparato de rayos X durante su visita a la clínica. Ellos discutieron lo que observaron e hicieron una lista de las cosas que necesitarían para construir el aparato. Luego, numeraron las fotografías para que cada uno pudiera hacerse cargo de construir una parte específica del aparato. Después, dibujaron un enorme plano en el piso de cómo debería ser el aparato.

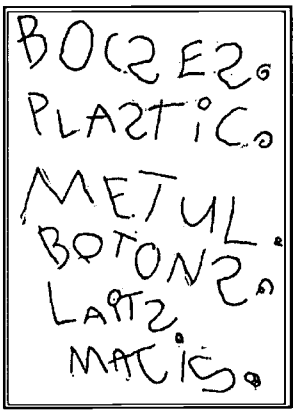


Figura 43. Los niños hicieron una lista de las cosas que necesitarían para construir el aparato de rayos X.

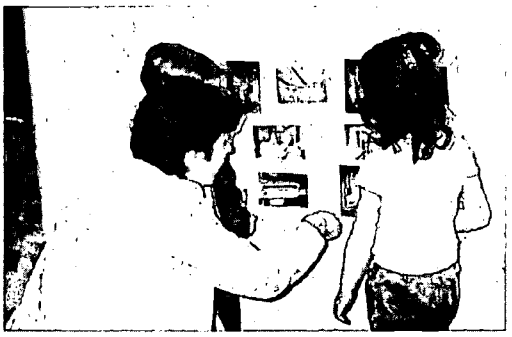


Figura 44. Los niños observaron las fotografías que tomaron durante su visita a la clínica. Seleccionaron las partes que les interesaba construir.

Un niño pensó en la longitud del aparato y la representó con cubos *Unifix*. "Yo quiero que la máquina sea de 48 cubos *Unifix* de largo". La maestra usó un metro para medir los cubos que estaban alineados en el piso con el fin de enseñarle a su alumno que las cosas se pueden medir de diferentes maneras. El niño le ayudó y la maestra dijo. "48 cubos *Unifix* es igual a 1.9 metros".

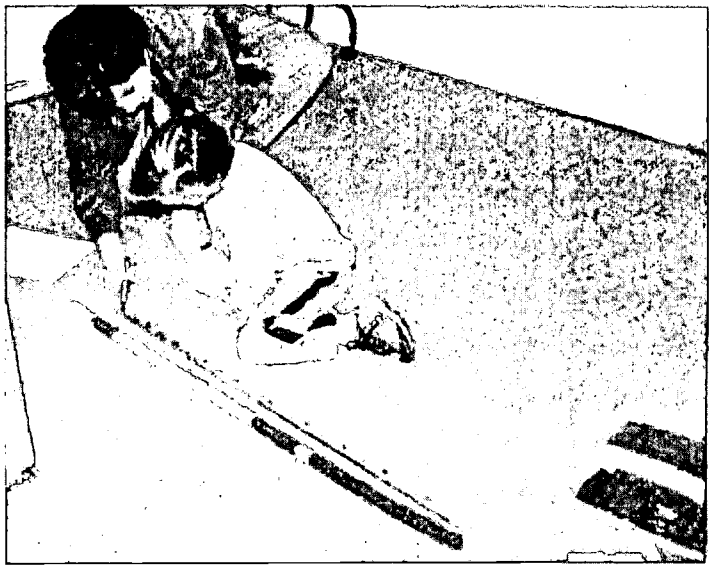


Figura 45. La maestra usó un metro para medir los cubos Unifix *que un alumno usó para representar la longitud del aparato.*

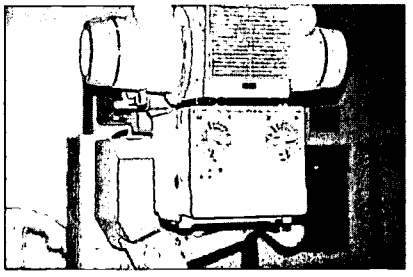
Los niños seleccionaron materiales reciclables y se pusieron a trabajar en la construcción del aparato. Ellos observaron cuidadosamente las fotografías, porque querían hacerlo lo más parecido posible a un "aparato de verdad". Ellos etiquetaron las partes del aparato de rayos X y también anotaron para qué sirve cada parte. Los niños terminaron su trabajo al cabo de seis sesiones.

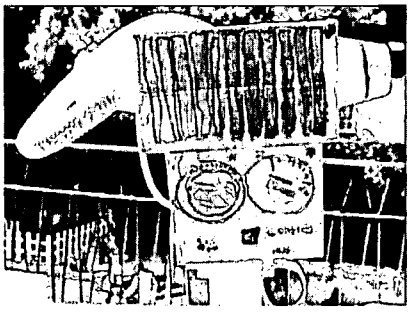
Figura 46. Los niños consiguieron cajas que fueran del tamaño de las partes del aparato que querían construir.

Figura 47. Dan usó un martillo para agregar una pieza de madera, de manera que la longitud del aparato fuera del largo que él había determinado.

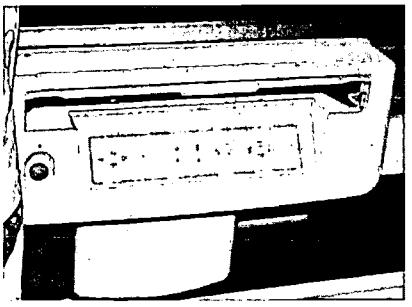
Figura 48. Los niños terminaron de armar el aparato en seis sesiones.

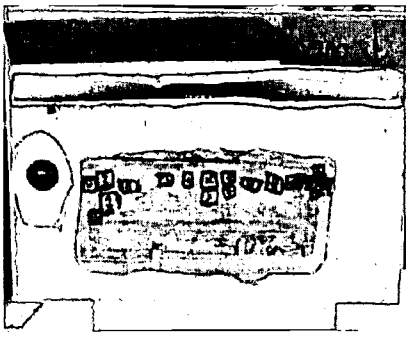
Todos estábamos sorprendidos de la semejanza que guardaba la creación de los niños con un aparato de rayos X real.



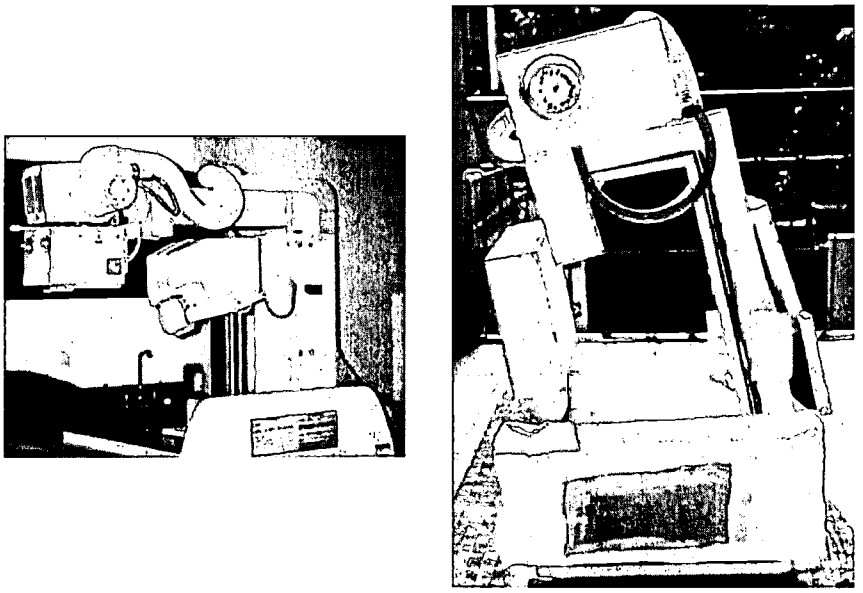


Figuras 49-50. Esta parte del aparato controla la luz.





Figuras 51-52. Los niños explicaron que la película que se usa para sacar radiografías se debe introducir por la ranura del aparato.



Figuras 53-54. Los niños quedaron muy contentos con su creación.

Surgen nuevas preguntas: ¿Quiénes tienen huesos?

Al inicio de una sesión de trabajo, la maestra celebró una junta de grupo. Sharian había traído algunos huesos humanos y ella quería que todos los vieran. Varios niños comentaron que sus padres tenían huesos de animales en casa. La maestra les pidió a los niños que trajeran los huesos a la escuela y agregó que podrían hacer una exhibición de huesos para que todos los vieran. Luego empezaron a discutir si todos los animales tenían huesos y un niño dijo que algunos sí y otros no. Entonces, la maestra les preguntó si ellos creían que los peces tenían huesos. Una niña recabó las opiniones de sus demás compañeros, preguntándoles uno por uno si pensaban que los peces tenían huesos o no. Ella iba marcando rayas por cada respuesta afirmativa o negativa que le daban sus compañeros. Luego, contó las rayas para ver qué es lo que creía la mayoría de los niños. Luego, la maestra preguntó: "¿Cómo podemos averiguar si un pez tiene huesos?"

Ximena: "Le podemos preguntar a un veterinario".
Victor: "Le podemos preguntar a un doctor".
Valeria: "Podemos conseguir un pescado y abrirlo para ver si tiene huesos o no".

La mayoría de los niños mostraron mucho interés por la última opción y la maestra estuvo de acuerdo en probar esta alternativa.

Algunos niños dibujaron lo que ellos pensaban que había adentro de un pez. Un niño se quedó pensativo durante un rato. La maestra se acercó a él y le preguntó: "Eddy, ¿te pasa algo?" Él le contestó que no con la cabeza. "¿Qué crees tú que haya adentro de un pez?" Eddy dijo: "Un esqueleto". Entonces la maestra lo alentó a que hiciera un dibujo de cómo creía él que era un esqueleto de pescado y el dibujo que se muestra en la Figura 55 es lo que hizo.

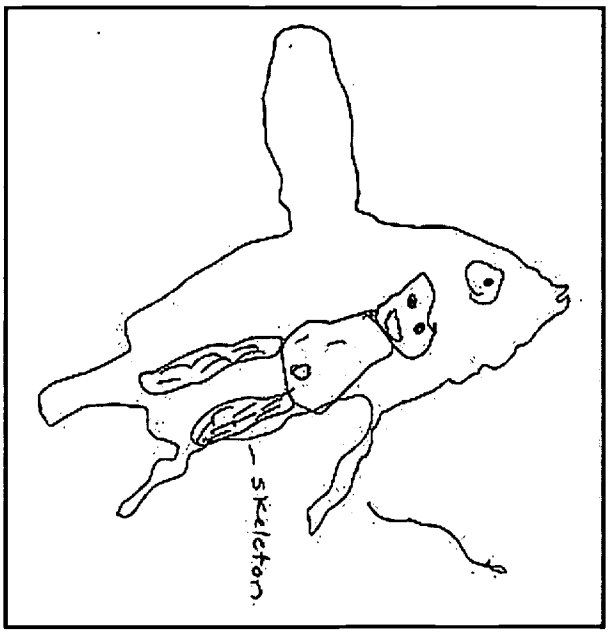


Figura 55. Un niño hizo un dibujo de memoria del interior de un pez.

Durante el siguiente período de trabajo, los niños pudieron constatar por ellos mismos si los peces tienen o no huesos, al abrir un pescado en el laboratorio de ciencias.

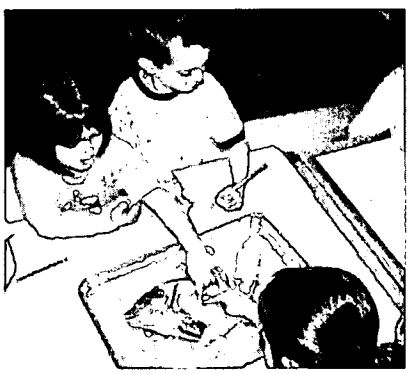


Figura 56. Los niños tocaron los huesos.

Figura 57. Los niños examinaron cuidadosamente los huesos y los contaron para averiguar cuántos huesos hay en un esqueleto de pescado.

Los niños hicieron dibujos por observación del pescado y anotaron el número de huesos que contaron.

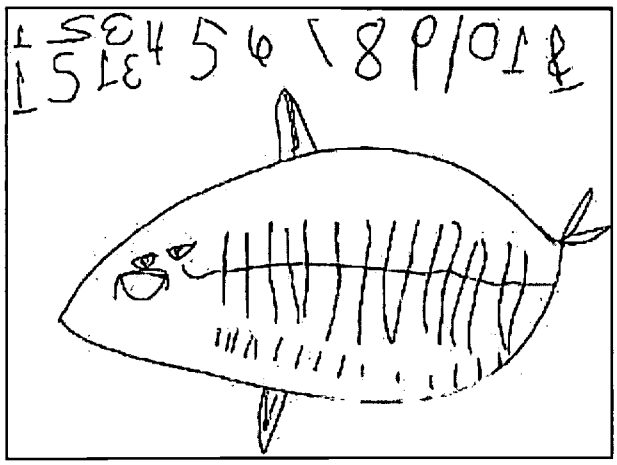


Figura 58. Los niños hicieron dibujos por observación del pescado.

Los niños siguieron hablando sobre huesos de animales y algunos de ellos trajeron algunos huesos de casa para enseñárselos a sus compañeros. También pesaron los huesos de animales y compararon los datos.

Figura 59. Los niños pesaron el hueso de un toro.

Figura 60. Una niña les enseñó un hueso que trajo de casa que su abuela usó para hacer caldo de res.

Algunos niños decidieron escribir un libro sobre animales que tienen huesos. Luego hicieron el libro dibujando el esqueleto del animal sobre un acetato y el animal en papel y colocando el acetato sobre el papel.

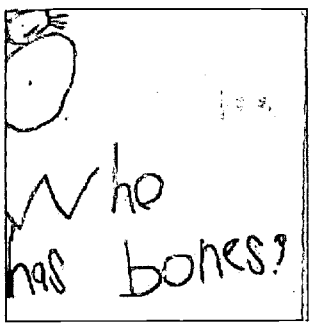


Figura 61. La portada del libro que hicieron los niños sobre animales que tienen huesos.

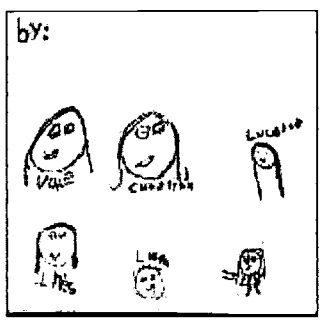


Figura 62. Página de autores del libro.

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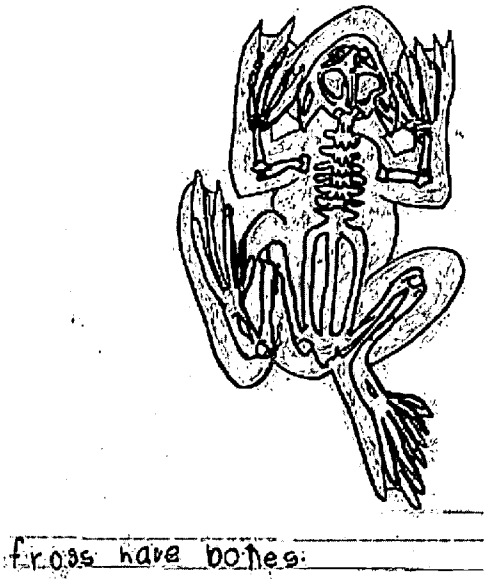


Figura 63. Una de las páginas del libro.

Varios niños seguían insistiendo en encontrar las respuestas a algunas de las preguntas que plantearon al inicio del proyecto y que aún no habían sido respondidas, entonces decidimos que era momento de invitar a un experto para que viniera a darles una plática al salón de clases. La maestra habló con un ortopedista y le pidió que se enfocara en responder las preguntas que los niños habían planteado antes de su visita.

- ¿De qué está hecho un yeso?
- ¿Qué colores de yesos hay?
- ¿Qué pasa si se moja un yeso?
- ¿Cómo se quita un yeso?
- ¿Cuánto tarda un yeso en endurecerse?
- ¿Cómo se mantienen juntos los huesos?
- ¿Cómo podemos cuidar nuestros huesos?
- ¿Por qué tenemos huesos?
- ¿Para qué sirve cada parte de un aparato de rayos X?

Figura 64. Andrea se ofreció como voluntaria para que le pusieran un yeso en el brazo y luego se lo quitaran.

Figura 65. El doctor mostró a los niños los diferentes colores de yeso.

El ortopedista puso un yeso en el brazo de una niña. Los niños miraron el reloj para averiguar cuánto tiempo tarda un yeso en endurecerse. El ortopedista también les explicó cómo podemos cuidar nuestros huesos. Él respondió todas sus preguntas y los niños también tuvieron la oportunidad de ver los instrumentos del doctor.

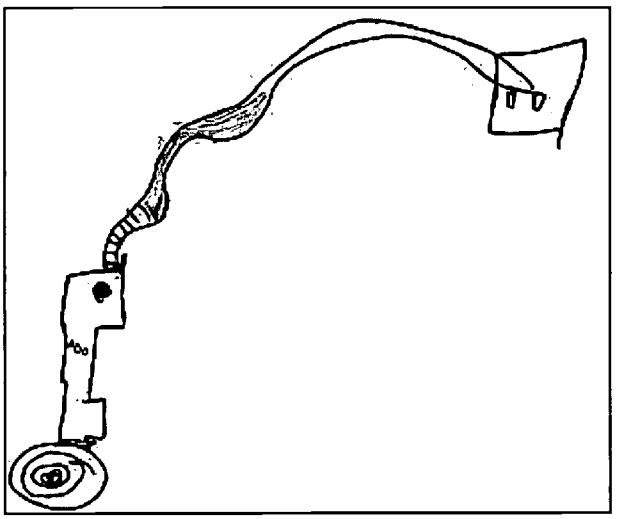


Figura 66. Dibujo en campo de "Esta es la sierra que el doctor usó para quitar el yeso que había colocado en el brazo de Andrea".

Una nueva área de interés: Cuidando nuestros huesos

El día después de la visita del doctor, un niño trajo un casco de su casa. Él explicó que lo usaba cuando andaba en su bicicleta y que el casco le ayudaba a cuidar su cráneo. Durante los próximos días, varios niños trajeron diversos artículos que protegían sus huesos de las fracturas. Ellos se los probaron y los usaron para hacer una dramatización.

Figura 67. Los niños jugaron con el equipo que les ayuda a proteger sus huesos.

Mientras los niños hacían dramatizaciones con el equipo, nos sorprendió una visita inesperada. Ella era una anterior alumna de preescolar que se había roto una pierna. La invitamos a pasar a nuestro salón de clases y ella compartió su historia con los niños. También dejó que algunos de ellos usaran sus muletas.

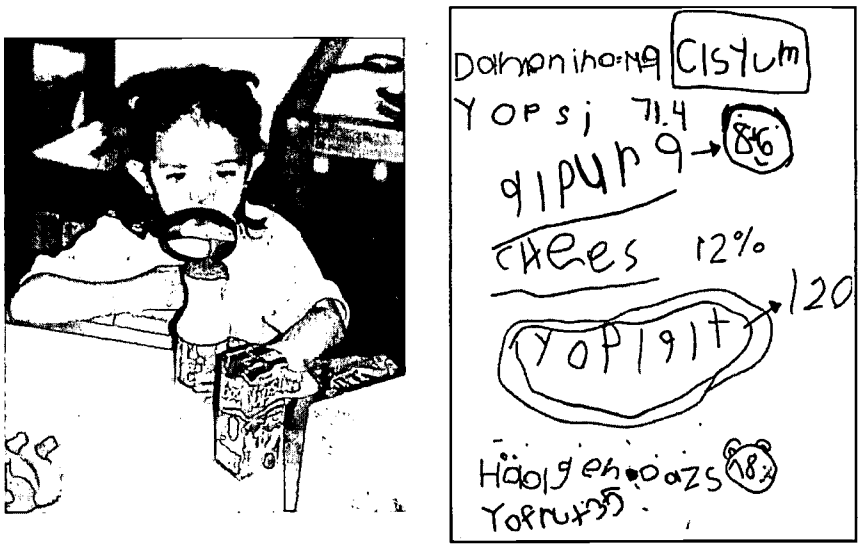
Figura 68. Una de nuestras anteriores alumnas de preescolar les contó cómo se había roto la pierna.

Figura 69. Los niños trataron de usar las muletas de la niña.

Debido a que el interés de los niños se enfocaba en cómo cuidar de sus huesos, la maestra trajo a la escuela diversos alimentos que contienen calcio. Ellos cocinaron pasta con queso y probaron muchos productos lácteos diferentes.

Figura 70. Los niños prepararon pasta con queso y probaron diversos productos lácteos.

Algunos niños formaron un equipo y decidieron convertirse en detectives de calcio. Su tarea era buscar la palabra calcio en las etiquetas y cajas de productos alimenticios para determinar si eran buenos para sus huesos.



Figuras 71-72. Un grupo de niños escribió una lista de productos que contienen calcio.

Los detectives de calcio pensaron que sería una buena idea decirles a sus compañeros de clases cuáles productos podían comer para fortalecer sus huesos. Ellos diseñaron "Menúes para tener huesos fuertes", los cuales compartieron con sus compañeros. Luego exhibieron los menúes en su salón de clases para que todos pudieran verlos.

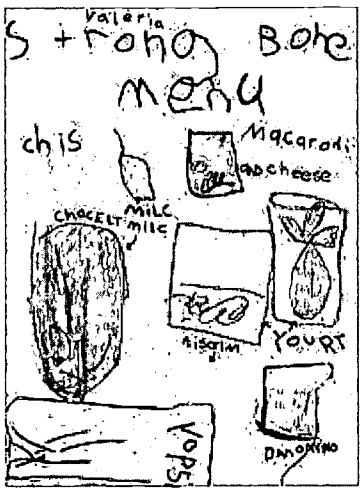
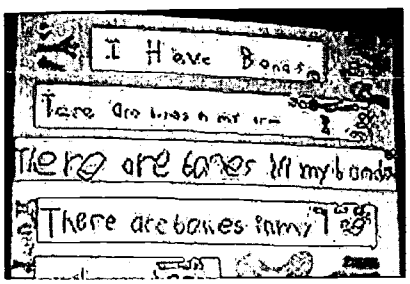


Figura 73. Los niños diseñaron un "Menú para tener huesos fuertes".

Todo el grupo contribuyó a la redacción de un poema original sobre huesos y todos los niños se aprendieron el poema.



Yo tengo huesos

Tengo huesos en mis brazos.

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Tengo huesos en mis manos.
Tengo huesos en mis piernas y en mis caderas
también los hay.
Tengo un cráneo en mi cabeza y costillas en mi
pecho.
Tengo huesos en mi cuerpo que crecen cuando
duermo.

Figura 74. Todo el grupo escribió un poema sobre huesos.

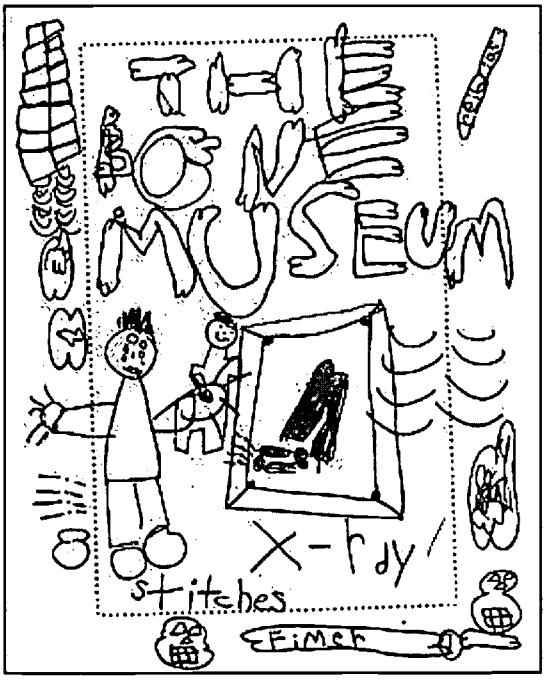
Originalmente, el último verso del poema era "Cuando duermo mis huesos descansan", pero uno de los niños argumentó que nuestros huesos crecen mientras dormimos. El resto del grupo estuvo de acuerdo en hacerle cambios a este último verso.

Preparativos para el montaje del Museo de Huesos

Debido a que los niños habían traído de casa tantos artículos relacionados con el tema y habían trabajado tanto, la maestra comenzó a preguntarse cómo podrían montar una exhibición que incluyera todo esto. Entonces se le ocurrió la idea de montar un museo de huesos. Los niños acogieron su sugerencia con mucho entusiasmo y empezaron a pensar en lo que tendrían que hacer para montarlo y cuáles artículos tendrían que incluir. Después de unas cuantas discusiones, los niños formaron comités para dividirse el trabajo. Los diversos equipos de trabajo que formaron se encargaron cada uno de escribir etiquetas para los artículos que se iban a exhibir, diseñar una invitación, hacer un letrero grande con el título de la exhibición, encargarse de los bocadillos y armar los escaparates de exhibición.

Figuras 75-76. Los niños escribieron etiquetas y explicaciones para describir los diversos artículos exhibidos.

Figura 77. Un grupo de niños trabajó en un letrero para la exhibición.



Figuras 78-79. Lucette diseñó la invitación que enviamos a sus padres. Ella trató de hacer cada letra con forma de hueso.

Figura 80. La maestra y una de las mamás del salón ayudaron a los niños a hacer galletas en forma de hueso para ofrecerlas como bocadillos durante la exhibición.

Figura 81. Los niños montaron escaparates de exhibición usando bloques de madera y una pieza grande de acrílico transparente.

Fase 3: El Museo de Huesos

Después de seis semanas de trabajo intenso y productivo, los padres de nuestros alumnos vinieron a la escuela para compartir con sus hijos todo lo que ellos habían aprendido sobre los huesos y para ver todo el trabajo que habían hecho.

Los niños cantaron y bailaron una canción sobre huesos. Luego, la maestra hizo una presentación en PowerPoint con fotografías y muestras del trabajo de los niños que había ido preparando desde el inicio del proyecto para irlo documentando.

Figura 82. Todos los niños portaban un gafete que decía "Experto en huesos". Los niños les dieron la bienvenida a sus padres con un baile y una canción sobre huesos.

Después de la presentación en PowerPoint, los expertos en huesos compartieron sus conocimientos con sus padres, respondiendo a las preguntas que ellos les hacían. Los niños también tuvieron la oportunidad de hacer preguntas al público y les divertía mucho ver que sus mamás y papás no se sabían algunas respuestas.

Figura 83. Los niños respondieron las preguntas de sus padres.

Luego, invitamos a los padres a pasar al Museo de Huesos con sus hijos.

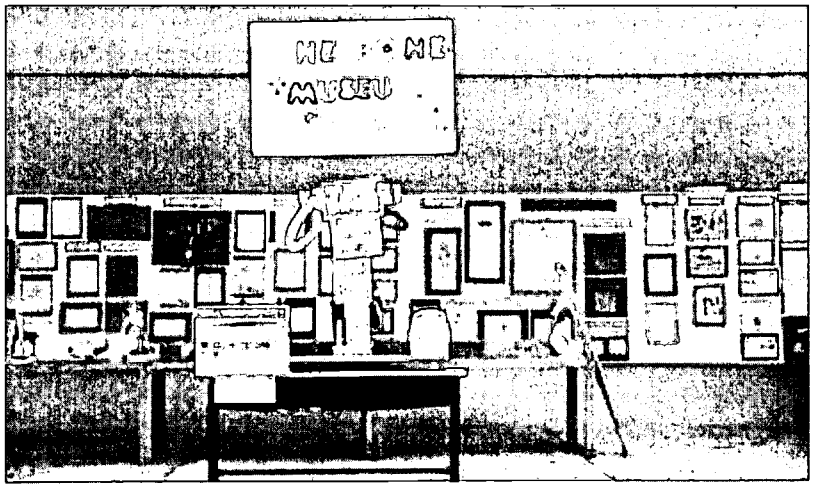


Figura 84. El Museo de Huesos.

Figura 85. El trabajo de los niños se exhibió en secuencia, según fue realizado durante las dos primeras fases del proyecto.

Figura 86. Nuestros invitados disfrutaron mucho las galletas con forma de hueso que hicieron los niños.

Figura 87. Los padres de los niños visitaron la exhibición.

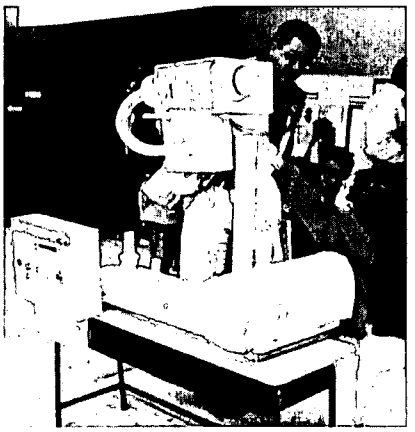


Figura 88. Carlos le explicó a su papá cómo funciona un aparato de rayos X.

Figura 89. Montamos un cuarto oscuro donde los visitantes podían ver radiografías.

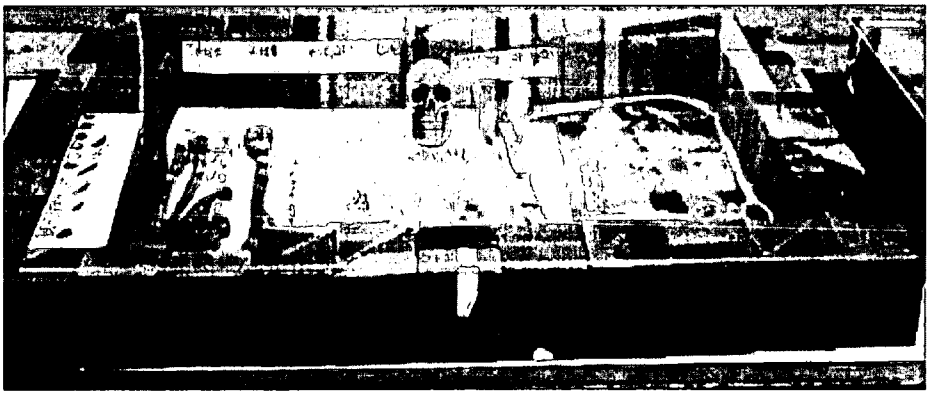


Figura 90. Este escaparate contenía huesos de humanos y de animales. Los niños especificaron cuáles eran reales y cuáles eran de plástico.

Conclusión

En años anteriores, ya había tratado de desarrollar diversos proyectos en nuestra escuela. Mis conocimientos sobre el Método de enseñanza por proyectos (*"Project Approach"*) se basaban en la lectura de todos los libros que había podido encontrar sobre este tema. Había escuchado diversas ponencias durante las conferencias de la Asociación Nacional para la Educación de Niños Pequeños (*"National Association for the Education of Young Children" o* NAEYC) y me inscribí al *Project-L listserv* (Project-L). Como soy la directora del Departamento de Preescolar de mi escuela, es mi deber motivar e instruir a mis maestras para poder brindar la mejor educación posible a nuestros alumnos. Yo sabía que el trabajo por proyectos era la opción que yo quería que ellos siguieran. Traté de comunicar mi entusiasmo y mis conocimientos de la mejor forma que pude a mis maestras. Unas cuantas maestras tuvieron éxito en sus proyectos, otras no e incluso otras nunca terminaron los proyectos que iniciaron. Muchas de mis maestras argumentaban que era imposible desarrollar un proyecto en un segundo idioma con niños tan pequeños y se dieron por vencidas antes de siquiera intentarlo. Nuestra energía se vio renovada este año después de que la Dra. Sylvia Chard vino a nuestra escuela a impartir un taller de tres días de duración. Mis maestras se emocionaron mucho y yo me sentí mejor preparada para guiarlas.

Una de las maestras quiso empezar un proyecto de inmediato y juntas realizamos el Proyecto de Huesos. Al principio, nuestros alumnos tuvieron dificultades para hacer preguntas y nosotras nos preguntamos si estas dificultades pudieran ser a causa de la barrera del lenguaje. Sin embargo, a medida que fue avanzado el estudio, comprendimos que los niños no estaban acostumbrados a hacer preguntas porque siempre se les había dado la mayoría de la información. Después de modelar el planteamiento de preguntas lo suficiente, ellos comenzaron a preguntarse y a hacer todo tipo de preguntas. Ellos entremezclaban palabras en español si no tenían suficiente vocabulario en inglés, pero fueron capaces de expresar sus pensamientos e ideas con bastante claridad. Ahora sabemos que el trabajo de proyecto ciertamente puede ser realizado en un segundo idioma con niños pequeños.

A lo largo del Proyecto de Huesos, los niños de kinder fueron capaces de aplicar habilidades básicas a la resolución de problemas reales. No sólo cumplieron con los requerimientos para su edad y grado escolar, sino que superaron nuestras expectativas en cuanto a los conocimientos y las habilidades que adquirieron.

Este proyecto motivó un cambio importante en nuestra escuela, porque la automotivación, el entusiasmo, el interés y la disposición a trabajar arduamente de los niños, así como la creatividad y las habilidades para resolver problemas que mostraron, asombraron a otras maestras que habían estado renuentes a intentar el trabajo de proyecto.

Los padres de los niños no habían sido informados de que estábamos trabajando de una manera diferente. No obstante, todos ya adivinaban que algo había cambiado porque el interés que mostraron sus hijos por este tema se vio reflejado en casa. Algunos padres compartieron estos comentarios con nosotros después de que había concluido el proyecto:

> Como padres, siempre le preguntábamos a nuestro hijo que había hecho en la escuela. Su respuesta siempre había sido la misma -"nada" o "jugué"- hasta que su grupo empezó a estudiar el tema de los huesos. De inmediato nos empezamos a enterar qué había hecho en la escuela porque llegaba a casa a contarnos. Él involucró a toda la familia, compartiendo con nosotros lo que había aprendido y haciéndonos todo tipo de preguntas. En casa, pasaba largos ratos buscando cosas significativas que pudieran estar relacionadas con el proyecto para que pudiera llevarlas a la escuela. Nuestro hijo estaba sumamente motivado y todos quedamos asombrados al ver todo lo que aprendió. (Padres de Fernando)

> Siempre me ha gustado participar en lo que hace mi hija en la escuela, pero quedé realmente sorprendida cuando vi a Inés y a sus compañeros abordar un tema desde tantos puntos de vista diferentes. Ellos aplicaron muchas habilidades: musicales, manuales, analíticas, deductivas, de observación, científicas, culinarias y lingüísticas. Este es el tipo de educación que quiero para mi

hija: aprender al averiguar más sobre lo que le interesa y no mediante la memorización de datos irrelevantes. (Mamá de Inés)

Agradecimientos

Quiero expresar mi más profundo agradecimiento a la Dra. Sylvia C. Chard, por todo lo que me ha enseñado y por su orientación y apoyo, los cuales me permitieron no sólo adquirir una comprensión más cabal, sino también enamorarme con el Método de enseñanza por proyectos (*"Project Approach"*). Quiero agradecer también a Miss Ivette Alkón, la maestra de kinder que tuvo la visión y el interés por abordar el estudio de este tema.

Acerca de la autora

Yvonne Kogan, Maestra en Educación, es la directora del Departamento de Preescolar del Colegio Eton en la Ciudad de México, cargo que ha desempeñado durante los últimos trece años.

Sus intereses incluyen el trabajo de proyecto y el desarrollo artístico de los niños.

Yvonne Kogan
Plan de Barrancas 96
Col. Lomas de Chapultepec
C.P. 11000
México D.F.
México
Correo electrónico: yvonnekogan@att.net.mx

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