

Early Literacy in Library Storytimes, Part 2: A Quasi-Experimental Study and Intervention with Children's Storytime Providers

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ABSTRACT

Within the peer-reviewed literature, there is a shortage of experimental and quasi-experimental studies examining libraries' impact on children's early literacy development. Therefore, Project VIEWS₂ (Valuable Initiatives in Early Learning That Work Successfully 2) used a quasi-experimental design to understand whether an intervention to train public library storytime providers in early literacy principles makes a difference in children's early literacy skills. In the experimental group, comparisons of preintervention and postintervention data showed statistically significant increases in the early literacy behaviors of the providers and attendees in the experimental group. There were no significant changes in the early literacy behaviors of control group providers and their attendees. A purposeful focus on early literacy principles makes a difference in storytime programs and in early literacy behaviors when children attend storytime. This article examines the design and delivery of the intervention, its effects on the study population, and its implications for practice.

Project VIEWS₂ (Valuable Initiatives in Early Learning That Work Successfully 2) was a research study, funded by the Institute of Museum and Library Services, that implemented a quasi-experimental design to determine whether the early literacy focus of public library storytimes makes a difference in children's early literacy skills. Researchers focused on addressing the various challenges inherent in observing an informal learning space with populations that varied both in age and regularity of attendance. An earlier article detailed the purpose, design, and findings of the first year of the study, also known as the Project VIEWS₂ baseline study (Campana et al. 2016).

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Background

To recap, researchers wanted to know whether an early literacy focus of storytime makes a difference for children's early literacy skills. To provide this understanding, data (qualitative field notes and quantitative behavioral coding) were collected at 40 libraries that were randomly selected from across Washington State. Researchers each conducted three storytime observations per library, offered to children in three age groups (0–18, 18–36, and 36–60 months) and to family groups (0–60 months). Analysis of the findings from the first year demonstrated that a wide variety of early literacy phenomena occurs in the content of the storytimes observed and in the behaviors of the children who attend the storytimes. The data also established a strong correlation between the presence of observable early literacy indicators (or behaviors) in the storytime program content and the presence of observable early literacy indicators (or behaviors) in the children who attend. Thus, an analysis of the data demonstrated that observable early literacy indicators are already present to some extent in the programs observed and, furthermore, that corresponding observable early literacy indicators are present to some extent in the children who attend storytimes. Children are not only engaging in early literacy activities in storytime but are also responding to the specific early literacy behaviors of librarians and storytime providers.

Building on these findings, the VIEWS₂ researchers then wanted to know how they might increase the number of observable early literacy behaviors in the children attending the storytime through the use of an intervention with a quasi-experimental research design. This article focuses on year 2 of the study, also known as the Project VIEWS₂ quasi-experimental study, in which researchers developed an intervention to train storytime providers to plan their storytime programs using research-based tools with the intention of identifying early literacy indicators and incorporating them in their storytime programs in interactive ways. Qualitative and quantitative data collection took place during year 2 and in that year's postintervention phase.

Literature Review: The State of Experimental Research in the Library Field

It is well recognized that the first years of a child's life are a critical time for both physical and cognitive development, especially language acquisition. In recent years, library programs for children have come to be recognized as informal learning environments (Howard 2013) where librarians and storytime providers model for parents and caregivers the importance of interacting with their children through a variety of literacy-based activities (Albright, Delecki, and Hinkle 2009). Children's librarians can be part of the learning process for children through the use of techniques such as scaffolding (Vygotsky 1987; Berk and Winsler 1995), which offers increasingly complex activities and opportunities to learn and grow, extending a child's learning experience. Although public librarians have been aware of the need for an increased emphasis on early literacy in their programming for young children, there has been a lack of correspond-

ing research demonstrating the impact of that programming on children and families (Smardo 1980; Dowd 1997; Mills et al. 2015).

Qualitative studies of children's programs and services in the library have asserted that library storytimes are indeed social spaces in which participants learn through interactions (McKechnie 2006; Becker 2012). However, attendance by children and families at these programs is often unpredictable (McKechnie 2006), which can create difficulties for researchers who want to conduct research and measure program impact on individual children. It is possible that these difficulties have contributed to the shortage within the peer-reviewed literature of experimental or quasi-experimental studies conducted on the impact of library programs on children's early literacy development and consequently on long-term conventional literacy gains (Chu 2015). There is a need, therefore, for an experimental or quasi-experimental study of public library storytimes that seeks to understand the impact of early literacy content in library storytimes, using tools that allow for data collection at the group level to combat the challenge of variable attendance.

The Study

This study aims to use an intervention to increase the early literacy outcomes for both the program content and the behaviors of the children who attend the program. It uses a quasi-experimental design incorporating pretests and posttests with control and experimental conditions and an intervention designed by the research team. The research questions guiding the second year are as follows: (1) What effect, if any, might an intervention delivered to storytime providers have on the early literacy content of their storytime programs? (2) What effect, if any, might an intervention delivered to storytime providers have on the number of observable early literacy behaviors of the children who attend their storytimes?

The team used two research-based tools—Program Evaluation Tool (PET; Campana et al. 2016) and Benchmark Curricular Planning and Assessment Framework (BCPAF; Feldman 2010), derived from the Washington State Early Learning Benchmarks.¹ Each tool comprises early literacy indicators (behaviors), which are grouped into several broader early literacy goals. The indicators in the PET tool are intended to be used to observe the storytime program. The indicators in the BCPAF tool are intended to be used to observe the children attending storytime at the group level. Each tool is divided into age groups of 0–18, 18–36, and 36–60 months, which correspond to the storytime groups observed in both years of the study. In addition, these tools were transformed into participant-focused planning tools for the purposes of the intervention.

1. For more in-depth explanation of these tools, please see Campana et al. (2016) and visit <http://views2.ischool.uw.edu>.

The quasi-experimental study included the same participants as the baseline study, which consisted of 40 storytime providers from across the state of Washington. See Campana et al. (2016) for more information about the recruitment of the study participants, which occurred at the beginning of the baseline study.

Intervention Design

The research team designed the intervention based on relevant literature, the observations and data from year 1, and researcher expertise. The researchers also consulted with a strategic advisory board, composed of experts in the fields of children's librarianship, early learning, early literacy, and cognitive development and other related fields, to guide the development of the intervention content. The purpose of the intervention was to give the storytime providers a foundation in both child development and early literacy; to enable the storytime providers to be more intentional and interactive in the planning and delivery of early literacy content in their storytimes during independent discovery periods; and to encourage collaboration, group learning, and problem solving among the storytime providers during the intervention.

The participants from the baseline study were randomly assigned to experimental and control groups of 20 participants each. A stratified random assignment method was used to ensure an equivalent number of large, medium, and small libraries across both conditions. Following the random assignment, one experimental library storytime provider withdrew from the study because of time constraints. This left 19 participants in the experimental group and 20 in the control group. In addition to the library that withdrew, the storytime observation data from three other libraries were excluded from the analysis because of technology and storytime attendance issues. Of these four libraries excluded from analysis, two were in the experimental group and two were in the control group, leaving 18 libraries in each condition. Furthermore, PET data from two storytimes and BCPAF data from one storytime were excluded because the data were incomplete.

Prior to the scheduling of the intervention, the participants did not know whether they were in the experimental or control group. Furthermore, once the intervention started, the research team asked participants not to discuss the intervention with colleagues. It is important to note that, on completion of the data analysis for year 1, the intervention was then delivered to the control group in the same manner as it was delivered to the experimental group.

The intervention spanned 13 weeks and consisted of three synchronous hour-long webinars (labeled 1, 2, and 3 in fig. 1), which were delivered three times each (labeled A, B, and C in fig. 1), separated by intervals (see fig. 1). The interval between webinars 1 and 2 was 3 weeks long; the interval between webinars 2 and 3 was 7 weeks long. The research team offered the webinars on three different days to maximize availability and to minimize scheduling constraints common to busy storytime providers. The researchers worked from scripts for each webinar to ensure that the content delivered to the storytime providers was consistent across webinars.

The intervention also provided independent discovery time for participants during the intervals between webinars 1 and 2 and webinars 2 and 3. During this time, the participants selected indicators related to phonological awareness and alphabetic knowledge and then incorporated these indicators into their storytime planning and delivery. The first independent discovery time began after the first webinar and lasted 3 weeks. The second independent discovery time began after the second webinar and lasted 7 weeks. During the independent discovery time following the second webinar, the team sent weekly emails with tips and strategies for the participants to use in their storytimes. This hands-on approach enabled the participants to practice their storytime planning, with guidance from the research team, by combining the tips with the practitioner-focused planning tools. Participants conducted the independent discovery time alone and without any researcher observation or recording.

Year 2 Data Collection

The year 2 postintervention data consisted of (1) qualitative field notes collected during both live and video-based observations and (2) quantitative coding from the live and video-based field notes using the PET and BCPAF tools.

Data were collected in an identical manner to the first-year baseline data. The researchers consisted of a core team of 5 people and 20 MLIS students. Researchers each observed three 30-minute storytimes over 3 months at each of the 39 libraries for a total of 117 storytimes. A procedure manual clarified the start and end times for each session's video recording and instructions for coding and taking field notes, which helped to ensure that data collection was equivalent across libraries. Each researcher was assigned to a library so that the same researcher coded all three storytimes at that library. The storytime providers were asked to ensure that they were presenting storytimes to the same age group with which they had been observed in year 1. Storytime age groups were 0–18 months (baby storytimes), 18–36 months (toddler storytimes), 36–60 months (preschool storytimes), and 0–60 months (family storytimes). Researchers video recorded each storytime and took live field notes of the children's behaviors during each observation. These field notes served as a basis for the live coding of early literacy indicators observed in the children's behaviors using BCPAF.² A second round of observations was then conducted of the video-recorded storytimes, with the researcher taking field notes of both the content of the program and the children's behaviors. The field notes taken from the video recording of the program were coded using BCPAF and served as the basis for the video-based coding using PET. Campana et al. (2016) provide in-depth details of how the research team constrained the observations to control for variances across programs.

To help with data collection, the research team designed a research-in-action class to train MLIS students as student researchers. During the course, the students worked to reliably use

2. The data presented in this article only include the video coding of BCPAF.

BCPAF and PET. The student researchers had to pass a reliability assessment for their coding to be used in the study and so they would receive credit for the course. The reliability assessment consisted of observing three videos of storytimes, taking field notes on the content of the storytime program and the children's behaviors, and coding the field notes of the storytime program using PET and the field notes of the children's behaviors using BCPAF. For each video, reliability was calculated between each student's coding and the key established by the core research team, using percentage agreement, Cohen's kappa, and Pearson's r (see table 1). It is important to note that the MLIS student researchers did not know which treatment group the storytime providers had been assigned to or the nature of the content of the intervention.

Results

The data from the PET and BCPAF coding of the video-recorded storytime observations were examined to provide insight into the effects of the intervention on the early literacy content included in the storytime programs (PET) and in the children's early literacy behaviors while attending those programs (BCPAF). Year 1 data were analyzed using the Mann-Whitney U test to detect differences between the control and experimental groups (see tables 2 and 3). The Bonferroni procedure was applied to control for the family error rate. No statistically significant differences were found between the two groups, so they were considered to be equivalent on the early literacy content and early literacy behaviors occurring in their storytimes.

To determine any effects from the intervention, year 2 data for the experimental group were compared with year 1 data for the experimental group. This comparison would indicate whether any changes had occurred in the early literacy content of the storytime programs and in the children's early literacy behaviors. The year 2 and year 1 data for the control group were also compared with look for evidence of any change because an absence of change in the control group data can further support any effects that might be visible in the experimental group data.

The PET and BCPAF data sets were analyzed using two levels of variables: the goal level and the indicator level. Goal-level variables reflect whether goals are met. Each goal was considered met for a storytime if at least one of the goal's indicators was observed during that storytime

Table 1. Average Intercoder Reliability Scores

	PET	BCPAF
% agreement	85	83
Cohen's κ	.68	.65
Pearson's r	.81	.74

Table 2. Year 1 PET Data: Results of Mann-Whitney *U* Tests for Differences between Control and Experimental Groups

PET Goal	Mann-Whitney <i>U</i>
Vocabulary G59: Expressive vocabulary	1,339
Grammar and Syntax G60: Progression in grammar and syntax	1,067
Expressive/Oral Language G62: Language is used for a variety of purposes	1,271
Listening G63: Understanding language by listening	849
Oral and Written Communication G64: Children communicate effectively	1,259
Conventions of Social Communication G65: Conventions of social communication	1,240
Reading G66: Phonological awareness	1,128
Reading G67: Alphabetic principle	1,256
Reading G68: Awareness of the print concepts	968
Reading G69: Comprehension of printed material	1,312
Reading G70: Awareness of written materials for a variety of purposes	1,130
Reading G71: Appreciation and enjoyment of reading	1,136
Writing G72: Alphabet knowledge	911
Writing G73: Writing skills and conventions	493
Writing G74: Writing for a variety of purposes	854
VoCom G58/61: Receptive vocabulary (58) and comprehension and meaning in language (61)	1,450
Writing G7234C: Alphabet knowledge (72), writing skills and conventions (73), and writing for a variety of purposes (74)	Excluded because $n < 20$
Writing G75C: Oral and written communication (64) and writing (72, 74)	980
Overall number of goals met	1,265
Number of reading goals met	1,225

Note.—*U* values rounded to nearest whole number. All $p > .05$.

(Campana et al. 2016). Indicator-level variables reflect the proportion of indicators observed over total number of indicators per goal.

Putting Year 1 and Year 2 Together

Comparisons of the postintervention video-based data from year 2 and the baseline video-based data from year 1 were performed separately for the control group and the experimental groups. Year 1 records were matched to year 2 records according to library and attendee age group to equalize representation among libraries; unmatched records were excluded from analyses. Thus, three storytimes for each year for each of the 36 libraries (18 control and 18 experimental) composed the data set. The Wilcoxon matched-pairs signed-rank test was used to detect year 1 and year 2 differences in the numbers of indicators observed for storytime

Table 3. Year 1 BCPAF Data: Results of Mann-Whitney *U* Tests for Differences between Control and Experimental Groups

BCPAF Goal	Mann-Whitney <i>U</i>
Vocabulary G58: Receptive vocabulary	1,163
Vocabulary G59: Expressive vocabulary	1,358
Grammar and Syntax G60: Progression in grammar and syntax	1,339
Comprehension G61: Comprehension and meaning in language	1,420
Expressive/Oral Language G62: Language is used for a variety of purposes	1,166
Listening G63: Understanding language by listening	1,242
Oral and Written Communication G64: Children communicate effectively	1,316
Conventions of Social Communication G65: Conventions of social communication	1,351
Reading G66: Phonological awareness	1,022
Reading G67: Alphabetic principle	1,263
Reading G68: Print concepts	1,087
Reading G69: Comprehension of printed material	1,332
Reading G70: Awareness of written materials for a variety of purposes	1,421
Reading G71: Enjoyment of reading	1,440
Writing G72: Alphabet knowledge	1,298
Writing G73: Writing skills and conventions	1,427
Writing G74: Writing for a variety of purposes	1,458
Overall number of goals met	1,418
Number of reading goals met	1,357

Note.—*U* values rounded to nearest whole number. All $p > .05$.

providers and their attendees in each of the experimental and control groups. The Bonferroni procedure was used to control for the family error rate.

Comparison of PET Data

Comparison of year 2 and year 1 revealed some statistically significant differences in the early literacy program content of the experimental group but no changes in the control group. Among the goal-level variables, there was a statistically significant increase in the number of goals met from preintervention to postintervention ($z = 3.4, p < .05$) in the experimental group storytimes. Among the indicator-level variables, there were significant increases in the proportion of indicators observed from preintervention to postintervention for three goals. See table 4 for details.

Comparison of BCPAF Data

Comparison of year 2 and year 1 revealed some statistically significant differences in the early literacy behaviors of children attending storytimes provided by the experimental group but no

Table 4. Changes in PET Data from Year 1 to Year 2

PET Goal	Group			
	Control		Experimental	
	<i>z</i>	<i>p</i>	<i>z</i>	<i>p</i>
Vocabulary G59: Expressive vocabulary	.9	>.05	2.1	>.05
Grammar and Syntax G60: Progression in grammar and syntax	1.0	>.05	1.1	>.05
Expressive/Oral Language G62: Language is used for a variety of purposes	.8	>.05	.1	>.05
Listening G63: Understanding language by listening	.6	>.05	3.5	<.05
Oral and Written Communication G64: Children communicate effectively	.5	>.05	.7	>.05
Conventions of Social Communication G65: Conventions of social communication	1.1	>.05	.2	>.05
Reading G66: Phonological awareness	.1	>.05	2.3	>.05
Reading G67: Alphabetic principle	1.1	>.05	4.2	<.01
Reading G68: Awareness of the print concepts	1.4	>.05	1.1	>.05
Reading G69: Comprehension of printed material	.6	>.05	1.4	>.05
Reading G70: Awareness of written materials for a variety of purposes	1.4	>.05	.7	>.05
Reading G71: Appreciation and enjoyment of reading	.9	>.05	1.0	>.05
Writing G72: Alphabet knowledge	1.1	>.05	4.1	<.01
Writing G73: Writing skills and conventions	.7	>.05	.9	>.05
Writing G74: Writing for a variety of purposes	.8	>.05	.6	>.05
VoCom G58/61: Receptive vocabulary (58) and comprehension and meaning in language (61)	1.4	>.05	2.1	>.05
Writing G7234C: Alphabet knowledge (72), writing skills and conventions (73), and writing for a variety of purposes (74) ^a	...	...	...	...
Writing G75C: Oral and written communication (64) and writing (72, 74)	.2	>.05	1.6	>.05

^a Excluded because *n* < 2.

changes in the children’s early literacy behaviors at those offered by the control group. Parallel to the PET results, there was a statistically significant increase from preintervention to post-intervention in the number of goals met ($z = 3.7, p < .01$) by the children attending the experimental group participants’ storytimes. Significant increases from preintervention to post-intervention were also found in two of the indicator-level variables in the experimental group. See table 5 for details.

Discussion

Year 2 worked to build on the correlation uncovered in year 1 between the early literacy content of public library storytimes and the early literacy behaviors of the children who attend

Table 5. Changes in BCPAF Data from Year 1 to Year 2

BCPAF Goal	Group			
	Control		Experimental	
	<i>z</i>	<i>p</i>	<i>z</i>	<i>p</i>
Vocabulary G58: Receptive vocabulary ^a	...	...	...	...
Vocabulary G59: Expressive vocabulary	.2	>.05	1.9	>.05
Grammar and Syntax G60: Progression in grammar and syntax	.5	>.05	1.0	>.05
Comprehension G61: Comprehension and meaning in language ^a	...	...	...	...
Expressive/Oral Language G62: Language is used for a variety of purposes ^a	...	...	...	...
Listening G63: Understanding language by listening ^a	...	...	...	...
Oral and Written Communication G64: Children communicate effectively ^a	...	...	...	...
Conventions of Social Communication G65: Conventions of social communication	.9	>.05	1.9	>.05
Reading G66: Phonological awareness	2.6	>.05	1.5	>.05
Reading G67: Alphabetic principle	1.4	>.05	4.4	<.01
Reading G68: Print concepts	.9	>.05	3.5	<.01
Reading G69: Comprehension of printed material	1.2	>.05	.6	>.05
Reading G70: Awareness of written materials for a variety of purposes	.2	>.05	.7	>.05
Reading G71: Enjoyment of reading	2.2	>.05	1.9	>.05
Writing G72: Alphabet knowledge	1.7	>.05	1.9	>.05
Writing G73: Writing skills and conventions	.4	>.05	.3	>.05
Writing G74: Writing for a variety of purposes	.1	>.05	.0	>.05

^a Excluded because 100% of the preintervention storytimes met the goal.

them (Campana et al. 2016) by designing and delivering an intervention to storytime provider participants with the goal of trying to increase the number of observable early literacy indicators in the children attending their storytimes. The success of this goal can be understood through an examination of the data with respect to the two research questions guiding the study.

Research Question 1

The PET data help to provide insight into research question 1. The effects of the intervention on the early literacy content of the storytimes offered by the experimental storytime providers can be seen when examining the changes in the PET data from year 1 to year 2. The statistically significant difference in the preintervention-postintervention comparison of the PET goals observed in the storytimes of the experimental group, combined with no changes found in the storytimes of the control group, suggests that the intervention was effective in helping

the storytime providers to increase the early literacy content in their storytimes, essentially helping them learn how to more intentionally incorporate early literacy.

The impact of the intervention's emphasis on alphabetic principle in the storytime content can also be seen at the indicator level through the statistically significant increase, when comparing year 2 with year 1, of the number of alphabetic principle-related indicators observed in the storytime content offered by the experimental group. These findings suggest that the intervention's emphasis on alphabetic principle was successful, possibly indicating that the experimental storytime providers more intentionally incorporated alphabetic principle-related content into their storytimes. This is particularly important because the storytime observations in year 1 uncovered a relative lack of storytime content focused on alphabetic principle (Campana et al. 2016), so it appears that the intervention was effective in helping to address this lack.

However, despite the intervention's focus on phonological awareness, there were no statistically significant changes at the indicator level in the number of observable phonological awareness indicators in the program content from year 1 to year 2 in the storytimes offered by the experimental group. This may be because of the high percentage of a few of the PET phonological awareness indicators observed across the libraries in year 1, potentially masking any observable effects by the intervention on the remaining phonological awareness indicators. Conversely, the PET data did reveal a statistically significant increase from preintervention to postintervention for the number of indicators observed in the listening goal. This may be related to the intervention's focus on interactivity because several of the indicators under the PET listening goal use interactive behaviors.

Research Question 2

The BCPAF data help to provide insight into research question 2, regarding the effects of the intervention with the storytime providers on the early literacy behaviors of the children who attend their storytimes. The statistically significant increase that emerged in the comparison of year 2 with year 1 for the number of BCPAF goals met in the storytimes of the experimental group, combined with no changes in the number of BCPAF goals met in the storytimes of the control group, suggests that the intervention with the experimental storytime providers was effective in increasing the number of observable early literacy indicators in the children attending the storytimes of the experimental group.

Corresponding to the statistically significant increase in the number of alphabetic principle indicators observed in the storytime content, a statistically significant increase was also found at the indicator level, when comparing year 2 with year 1, in the number of alphabetic principle indicators observed in the behaviors of the children attending the storytimes offered by the experimental storytime providers. This finding also appears to support the effectiveness of the intervention's emphasis on alphabetic principle. Moreover, an increase in the number of

alphabetic principle indicators observed in both the program content and in the behaviors of the children suggests that the children are responding to the content being offered in the early literacy storytime.

Even though the intervention emphasized phonological awareness, there was not a statistically significant increase at the indicator level in the number of phonological awareness indicators observed in the children's behaviors. This may be because a few of the BCPAF phonological awareness indicators were found in a large percentage of storytimes in year 1.

Summary

This article has presented the design, delivery, and effects of an intervention—delivered as part of the Project VIEWS₂ quasi-experimental study—on the number of observable early literacy indicators of children attending public library storytimes. There are two major findings. First, following the intervention, the storytime observation data revealed some statistically significant increases in the early literacy content of the storytimes offered by the storytime providers in the experimental group but no statistically significant increases in the early literacy content of the storytimes offered by the storytime providers in the control group. Second, following the intervention, the storytime observation data also revealed statistically significant increases in the early literacy behaviors of the children attending the storytimes offered by the experimental group storytime providers but no statistically significant increases in the early literacy behaviors of the children attending the storytimes offered by the control group storytime providers.

Implications

One broad implication of these findings may be of critical importance to researchers in the field of early literacy in informal learning environments, such as library storytimes. Although storytime providers have long believed that storytimes are important to children's early literacy development, this is the first large-scale quasi-experimental study to assess informal learning environments such as library storytimes in a comprehensive, systematic, valid, and reliable way. Through the use of research-based tools, including a group-level observation protocol for the children, and the design and delivery of a targeted intervention, this study has demonstrated that quasi-experimental research is possible in the informal learning environment of public library storytimes.

Another implication of this study—of equal importance to librarians and library administrators—is that designing and delivering training for storytime providers that emphasizes intentionality and interactivity in the planning and delivery of the early literacy content of storytimes and allows the providers time to interact and share ideas with each other may increase the early literacy content and the children's observable early literacy behaviors during storytime. Furthermore, the themes, content, and activities in the intervention can be incorpo-

rated into MLIS curricula to better prepare future children's librarians and storytime providers with a solid foundation in early childhood education and an intentional, interactive approach to storytime planning and delivery.

Limitations

This quasi-experimental study does have certain limitations that need to be discussed. The research team included several different researchers, including a different group of MLIS students each year. Though we applied the same reliability test each year, it is possible there could still be some variations in the coding as a result. Early literacy indicators can be affected by so many external factors, such as a child's home environment and exposure to environmental print, that are beyond the control and scope of this research study. Furthermore, because of the nature of field research, it is not possible to control for variables such as unexpected attendance at these noncompulsory storytime programs, materials chosen and delivered in the program, and children's abilities to sit through the entire program. The design of the study intentionally took some of these factors into consideration by asking researchers to observe three storytimes at each library and by using group-level observational tools for the children. Still, there remain external factors that bear consideration.

Conclusion

This study serves as an important first step in demonstrating the significant role of public libraries and other informal learning environments in the early learning development of young children. Given the richness of the VIEWS2 data set, there are many ways the data can be further analyzed to provide additional insight into the nature of early learning in library storytimes. As such, there are future plans to analyze the storytime observation data in other ways, such as comparing and going into greater depth for each age range within each research tool, isolating the reading goals, and examining the impact of the intervention's focus on intentionality, interactivity, and community.

Further research is needed to comprehensively aid in the assessment and evaluation of library storytimes because they have multiple goals and purposes in addition to increasing early literacy. The researchers are already working to build on the findings of this study in the future by exploring how storytime content incorporates multiple domains of child development. In addition, future research should extend the boundaries created for this study to include supplementary storytime components not offered at all libraries, such as playtime and craft time.

Finally, additional research is needed to explore storytimes outside of the library to understand the longer term impact they can have on the everyday lives of the children and families who attend. Possible studies in this area include an examination of how children's rooms in public libraries can teach or reinforce early literacy skills through the environmental design and layout; an exploration of the impact storytimes can have on children's social and emo-

tional growth, especially how these relate to kindergarten preparedness; and a survey of parents and caregivers to understand what they are doing at home to extend the learning that is taking place in storytime and to measure how, if at all, their own behavior has changed in their interactions with their children as a result of storytime. It would be interesting to measure the effects that storytimes have on caregiver behavior and how to help librarians understand their roles as mentors.

In conclusion, VIEWS₂, the quasi-experimental study, offers initial observational data that provide a good foundation for future research. The study demonstrates that helping storytime providers to be more intentional and interactive with their early literacy practices leads to gains in children's early literacy behaviors at storytime. The field of children's librarianship can take advantage of this critical demonstration of impact to advocate for the importance of the early literacy programs they offer to families and young children in their communities and to develop ways to continuously improve and grow their practice to meet their communities' dynamic needs.

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