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EDITORIAL RESPONSIBILITY

The *IALS Journal* is published once a year and addresses key issues facing today's laboratory and university affiliated schools. Articles offer perspectives on educational trends and include topics such as the history and future of lab schools, innovations in curricula and programs, lab school administration, and teacher education. The journal includes articles grounded in evidence-based classroom practices, action research, and theoretically based quantitative and qualitative scholarship.

Points of view or opinions expressed in the IALS Journal do not necessarily represent the views or opinions of the IALS Journal editors or IALS: The International Association of Laboratory Schools. IALS supports this journal to share ideas and stimulate discussion within the campus school network and with public and independent schools. Contributing authors are encouraged to express their opinions and research openly on issues related to teacher preparation, research, curriculum development, pedagogy, and staff development. Readers should evaluate these ideas in regards to the environment of their campus, independent, or public school.

The *IALS Journal* is printed once a year by Shippensburg University of Pennsylvania, 1871 Old Main Drive, Shippensburg, PA, 17257. The Executive Director of IALS is Patricia Diebold of Edinboro University of Pennsylvania, Edinboro, PA. Current copies of the IALS Journal may be obtained from the journal editors or online at the IALS website at: www.laboratoryschools.org.

IALS: Dedicated to Research, Leadership,
And Educational Excellence.

EDITOR'S COMMENTS

With many thanks to the IALS Executive Board and to our current president,

Dr. Amani Reed for his leadership, we are pleased to present the eighth volume of the *International Association of Laboratory Schools Journal*. It is without question that the valuable work of laboratory schools across the world and in the association have continued to positively impact the lives and the education of our children. In this volume and in all that follow, we aspire to provide a home for the myriad voices that are represented within our laboratory schools and to celebrate our collaborative achievements with even wider audiences.

This volume represents the combined efforts of a broad spectrum of IALS members. Laboratory school teachers, university professors, and graduate students from across the globe have contributed their academic work to this volume, and by doing so, they have asked us to consider our own stake in the greater mission of our schools. As such, we are proud to present the following contributions to this eighth volume of the *IALS Journal*.

In the featured article, "Two Korean Laboratory Schools Interpreted through the Lens of Ecological System Theory," Yong Joon Park and Youjin Yang bring the reader to South Korea to explore two Korean laboratory schools. The authors analyze their findings using an ecological theoretical framework that emphasizes the many layers that impact a laboratory school. Such an approach recognizes the unique roles played by many laboratory schools as they navigate everything from the internal relationships between students in the school to the role a school plays in this larger context.

Like the two Korean laboratory schools, Christian Timo Zenke also recognizes the important role that context, educational research, and physical surroundings play in laboratory schools. His article, "The Challenge of Open Space: Lessons from a Pioneering School Building Layout in Germany" catalogs the many building design and educational decisions that, over the history of this particular laboratory school, have impacted the education of students. Again, this highlights the importance of context in understanding laboratory schools.

"Exploring Preschool Teachers' Narrative Comprehension Knowledge and Instructional Practice" by Felicia R. Truong, Ruth Ebisuzaki, and Abby Carlson and the article, "Am I a Math Kid? Developing a Growth Mindset in Mathematics Through Empathy" by Jillian Green, further capitalize on the importance of a teacher's knowledge and methodologies to motive instructional best practices. Both articles reinforce the crucial work that our teacher-researchers do in laboratory schools and beyond to scaffold meaningful learning for the students we serve.

Similarly, in "Let's Be Mindful with Young Children!" authors Satomi Izumi-Taylor, Angela Davis Jones, and Sandra Brown Turner describe methods for building not only knowledge but mindfulness in the students who attend laboratory schools. Both this article and Dr. Cheryl Slattery's article on developing positive teaching dispositions in middle-level pre-service teachers, recognize that a student's inner sense of well-being alongside his/her ability to observe and reflect critically are an essential part of the learning process.

To conclude this volume, 2017 Conference Organizer, Sandra Brown Turner, presents highlights on the keynote speakers, conference sessions, and events at the IALS Annual Conference in Memphis, Tennessee titled, "Laboratory Schools: Sound Theories into Sound Practices."

As contributing editors, we are honored to celebrate the work that you do in your laboratory schools, with your colleagues, and for your students each day. We hope you enjoy this edition and that you, too, will consider honoring your outstanding teachers and laboratory schools by submitting your academic research and writing in future volumes of the *IALS Journal*.

Dedicated to research, leadership, and educational excellence,

Dr. Shannon Mortimore-Smith
Dr. Christopher Keyes
Editors

Two Korean Laboratory Schools Interpreted through the Lens of Ecological System Theory

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Abstract

This is a case study of two laboratory elementary schools partnered with teacher training universities located in South Korea. The purpose of this study is to describe and understand the characteristics of successful and popular laboratory elementary schools. We collected and analyzed field trip portfolios that included reflective journals, video-clips and pictures, we informally interviewed the school and university staff, and observed the school and teacher training university system. We concluded that South Korean laboratory schools maintain their own system and curriculum efficiently with their own mission and philosophy such as innovative curriculum through practical partnerships with local teacher training universities. We imply that it would be necessary to investigate more successful laboratory schools to obtain the general characteristics of the laboratory schools in different regions in South Korea in the future.

"Education is not preparation for life;
Education is life itself."
–JOHN DEWEY

Introduction

As teacher education program faculty members in the United States, we made a plan to visit South Korea for the purpose of understanding the Korean education system, especially laboratory schools affiliated with teacher education institutions. Before the trip, we selected two laboratory elementary schools in consideration of future partnerships with two teacher training universities in two different provinces in South Korea and our university in the U.S. The two teacher training universities are University A, an independent four-year teacher's college for educating pre- and in-service elementary schools teacher through undergraduate and graduate programs, and University B, an independent teacher's college with a similar system to University A's but merged with a College of Education (i.e., including secondary education) at a national university. Both universities received grants from the South Korean government for a global teacher training project in 2015 and they are very active in forming international partnerships as part of the project (Park, 2015). Both universities maintain a well-known high quality of pre-service teachers who normally get the high scores on the entry exam, "Soo-nung," and the highest high school GPAs.

The purpose of this study is to describe and understand the characteristics of current laboratory elementary schools in South Korea. Below, we briefly summarize our relevant theoretical foundation, Bronfenbrenner's ecological system theory of laboratory schools, and the history of laboratory schools affiliated with universities in both the U.S. and South Korea.

Laboratory Schools and Bronfenbrenner's Ecological System Theory

Bronfenbrenner's ecological system theory provides a framework to examine how environments influence child development. This theory consists of five nested structures, like a set of Russian dolls, representing the layers of relationships the child is surrounded by (Bronfenbrenner, 1979). The five nested structures are the microsystem, mesosystem, exosystem, macrosystem, and chronosystem. Each system interacts with the others and influences children's development in multiple ways (Bronfenbrenner Center for Translational Research, 2017; Kail & Cavanaugh, 2010; Morrison, 2017; Bornstein & Cheah, 2006; Bronfenbrenner, 1979). The

microsystem, the innermost environmental layer, is the immediate surroundings in which the child has direct, face-to-face relationships such as parents, extended families, friends, school, classroom, and teachers. The interrelationships among the microsystem make up the mesosystem (Bronfenbrenner & Ceci, 1994), such as when parents meet teachers, relationships with neighborhood and playgroup members, and so on (Berk, 2003). The micro and mesosystems are where children spend their time with others and grow, therefore, these are the most influential layers for child development. Ensuring positive and supportive links between the micro and the mesosystems is very significant in child development. For example, more frequent interaction between parents and teachers and frequent communication between home and school will promote children's developmental potential by building positive relationships inside the mesosystem (Bronfenbrenner, 1979; Connors & Epstein, 1996; Huang, 2017; Neal & Neal, 2013; Yang, 2012). The exosystem is an outer layer of environment that indirectly influences the child's development such as the parent's workplace, family healthcare provider, school administration, and community service. The macrosystem includes cultural values, lifestyle, laws, customs, and subculture in society (Bronfenbrenner, 1979; Bronfenbrenner & Ceci, 1994).

Bronfenbrenner's theory can explain the dynamic relationships between a laboratory school and its affiliated university that are greatly involved in child development. The laboratory school is a microsystem where the students spend most of their time, and the interrelationships within a laboratory school setting with significant members such as parents, pre-service teachers, homeroom teachers, and peers are the mesosystem. The affiliated university is an exosystem that is indirectly involved in the student's development and school lives. The affiliated university and the laboratory school work together and fulfill each other's needs. For example, the laboratory school provides sites for research, observation, and student teaching for pre-service teachers in the university teacher education program.

Many Korean parents living in South Korea and other countries believe that education is the key to success in their child's life and that parents' roles and support for their child are critical for their child's success in the future (Kim, 2008; Kim & Chung, 2011; Lynch & USA Today, 2017; Yang, 2012). These parents think that they have won the lottery when their child can go to one of the university-affiliated laboratory schools in South Korea because the students for the laboratory schools are selected by an impartial computer drawing selection system each year by schools. That means that a highly educated family with high annual income might not be able to send their child to the laboratory school and a family with low SES can win from the selection system. Some of the reasons parents want to send their children to the laboratory school are the high quality of its education system and the extra-curricular activities that can influence children's academic learning and development along with the reasonable tuition cost.

The History of Laboratory Schools in the U.S.

The American educator, John Dewey (1859-1952), established the Dewey School as the first laboratory school on the campus of the University of Chicago in January of 1896 (Harms, 2012). Dewey was a faculty member hired to head the Department of Philosophy by the University of Chicago in the summer of 1894. He applied his passion for progressive education and social reform to establishing a laboratory school. With financial support from the University of Chicago, he founded the laboratory school with the mission to discover "how a school could become a cooperative community." The Dewey School was renamed the Laboratory School around 1901 by the University of Chicago (DePencier, 1967; Harms & DePencier, 1996; Mayhew & Edwards, 1966; Knoll, 2014; Jozwiak & Vera, 2016).

For the characteristics of the Dewey School, there are two main factors: (1) a great partnership and contributions among teachers, administrators, parents and students and (2) an educational environment that includes strong involvement of the academic departments at University of Chicago in laboratory school-based research (Borup-Nielsen, 1995; Harms, 2012). With the success of the Dewey School, many higher institutions and/or teacher education programs across the nation considered the laboratory school setting on or near campus for the purpose of educational theory into the classroom practice. For instance, in the 1950s, there were about 200 laboratory schools in the U.S. During the 1960s, many teacher education programs focused on realistic teacher training in a public or private school system instead of the laboratory school settings that were sometimes considered to be schools for gifted and talented students. Some scholars became concerned that there were too many directions and purposes of laboratory schools such as the sites of student teaching, clinical experience, educational research, and so forth (Van Til, 1969). Starting in the 1970s, laboratory schools started to disappear be-

cause of budget cuts and other factors. Some survived as Early Childhood/Early Special Education or clinical programs (King, 1987; National Association of Laboratory Schools Education Reform Salt Folk Task Force, 1989). Since the beginning of the twenty-first century, there are still many laboratory schools in operation in the United States and around the globe (International Association of Laboratory Schools (IALS), 2017; Ramos, 2017)).

The History of Laboratory Schools in South Korea

The first laboratory school in Korea was founded on April 16, 1895 in Seoul, South Korea and was called Han Sung Teacher's College Affiliated Elementary School. The name was changed to Seoul National University Affiliated Chung-ang Elementary School on August 22, 1946. The university also established a middle and high school in that same year. The school name was changed again to Seoul National University Teacher's College Affiliated Elementary School on March 2, 1996 (Seoul National University Affiliated Elementary School, 2017).

Many Koreans believe that the Japanese colonial period (1910 – 1945) was a kind of Dark Age for Korean students, who were forced to read and write in Japanese rather than in Korean at public schools in Korea. For instance, Japanese teachers asked Korean students to change their Korean names to Japanese (Asia for Educators of Columbia University, 2009). Many Koreans became economic slaves for Japanese imperialism (Ellington & Ferrarini, 2017). After the end of this Dark Age, Koreans independently started to re-establish many national teacher's colleges to educate and train Korean pre-service teachers in each province of Korea and affiliated schools for student teaching and practice in 1946 (Hankook University Newspaper, 2004). Normally, the affiliated schools or laboratory schools featured elementary schools (from 1st grade to 6th grade), middle schools (from 7th grade to 9th grade) and/or high schools (from 10th grade to 12th grade).

For this case study, we selected two laboratory schools from two different provinces in South Korea, Lab School A and B, and studied their history. Lab School A was founded in a province near Seoul in 1957. The school has been recognized and selected as one of the best schools in South Korea. For example, the school was selected for its high-quality curriculum among 100 elementary schools in South Korea in 2012 as well as one of the best elementary schools for character education by the Ministry of Education and for innovative character education by the Office of Education, City of Incheon in 2014 (Gyeongin National University of Education Affiliated Elementary School, 2017).

Lab School B was established as an affiliated elementary school in a Special Independent Island in 1974. In 2008, the school name was changed to the current school name after a teacher's college was merged as a part of College of Education, a University. The Island is the biggest island located in far south of Korean peninsula and is famous for tourism. The school has been selected as one of the best laboratory schools for various purposes such as innovative curriculum, creative teachers, open lessons, and so forth by the Ministry of Education in South Korea for several times. Recently, the school established an e-library for their students (Juju National University, 2017).

The purpose of this study is to describe and understand the characteristics of two current laboratory elementary schools in South Korea. Our major research questions are (1) What kinds of similar characteristics do the laboratory schools have? (2) What kinds of distinctive characteristics do the laboratory schools have?

Method

Participants and Sites

The sites for this case study were two laboratory schools and their affiliated universities located in different cities in South Korea. We randomly and systematically met with numerous university administrators, faculty, laboratory school administrators, pre-service and in-service teachers, and lab school students.

Data Collection and Analysis

We directly observed classrooms, took field notes, kept reflective journals, and conducted participant observation (Creswell, 2009; Spradley; 1980) at the universities and lab schools. We also collected online resources from Internet news, newspapers, radio interviews, blogs, school websites, and Facebook pages. In the process, we informally interviewed randomly selected pre-service and lab school teachers as well as the teacher educators of the affiliated universities. The guiding interview questions were about how the lab schools are unique or why the lab schools are different from other public or private schools. We also asked about the school mission and educational philosophy and the kinds of relationships that exist between the lab schools and universities teacher education programs. For the thematic analysis, we followed Cre-

swell's (2009) recommendations in collecting the initial data, coding patterns, and identifying four themes: (1) lab school mission and philosophy for the social reform, (2) the lab schools' roles in students' intellectual development, (3) the innovative curriculum of lab schools and (4) lab school partnerships. We interpreted the data based on these four major themes of characteristics of the lab schools using Bronfenbrenner's ecological theory.

Findings

Lab school mission and philosophy for the social reform

The lab school itself can be a microsystem in the child development. It is important to understand the school mission and philosophy because it shapes how the lab schools want to educate students and defines the role of the lab school in child development. The mission and philosophy of the two lab schools in this study are very similar to each other. As a model school, a lab school should be exemplary among pre-service and in-service teachers in other public and private education systems and for Korean parents and their children with the history of establishing South Korea newly after Japanese colonial period and Korean War. We believe that the lab schools are a Korean version of social reform that reflects John Dewey's philosophy to establish lab schools in order to stimulate or facilitate social reform and create a better society.

As for the school mission related to social reform, the two school principals and some teachers stated that the use of an impartial lottery system of school admission each year is a symbol of the equal education available from the school regardless of gender and SES differences (Stasz & Stolk, 2007). In particular, these schools have positively influenced individual children's well-being and education in South Korea.

> One teacher said, "It is another home for the low SES students' learning and developmental domains. But, like the extended home, it is not always peaceful to work with diverse family groups (e.g., including parents' education level and income status). That is why our role is important as a mediator."

Bronfenbrenner's *macrosystem* is the culture where a child lives such as lifestyle, classmates' (SES), poverty, and so forth. The school uniform and physical classroom setting are important parts of maintaining students' equality and collaboration. A teacher said, "All the students come to school wearing the school uniform except for the exceptional cases such as wet uniforms, etc. In that case, students just recognize their friends as equal classmates or partners rather than figure out who are or not wearing the brand name clothes." Another teacher stated that she intentionally grouped students including low-, intermediate- and high-achieving students in small groups of five or six students using desks and chairs for the possible collaboration.

Figure 1. Two school's student uniforms and Physical classroom settings

The lab schools' collaborative roles in students' intellectual development

Bronfenbrenner's *mesosystem* is the specific interconnectivity within a social setting such as various classmates at a laboratory school and a child's behavior changes at home. The lab schools play a role in students' intellectual development by allowing students to interact with not only other classmates from diverse SES but also highly qualified teachers and teacher candidates from the University for the specific and positive interconnectivity within the lab school settings. For instance, the lab school students can have various role models in the school settings such as in-service and pre-service teachers, parent volunteers, afterschool extracurricular teachers, and so on.

For the purpose of bringing together home and school practices, lab school teachers integrate tech devices into various educational practices (Jamison & Kirova, 2016). As shown in Figure 2, a teacher can model how to use technology using the classroom computer. Students also check out iPads for tasks or to play educational games that they collaboratively designed. In this case, students can learn how to use current tech devices appropriately for educational purposes at school. In our observation, we noticed that most students from Lab School A could use appropriate apps in the iPad efficiently aligning with their hands-on game sets.

Figure 2. Technology use in the classroom settings

The innovative curriculum of lab schools

Ramos (2017) stated, "Laboratory schools are known for their flexibility towards the development of innovative pedagogical practices and research" (p. 34). Bronfenbrenner's *chronosystem* refers to a big change or transition or an influential event in someone's life such as when a child from a low-income family enters a laboratory school and successfully works with others through the curriculum cognitively, physically, socially and/or emotionally. The principal at Lab School A said, "As educators, we expect that our students become innovative thinkers who have good attitudes or manners for others no matter where they came from." Some teachers and volunteers noted that things had changed since the principal was hired in 2007. The principal has encouraged teachers to study and conduct educational experiments as part of professional development connected to university A including taking a project approach rather than simply using the textbooks for the curriculum. One of these projects is illustrated in Figure 3. For the theme of how to protect our environment, students did research together as a small group and collaboratively presented their findings including innovative ideas. They also shared new games to promote recycling or cleaning the environment with other group members in the classroom setting.

Figure 3. Collaborative presentation for a group project in Lab School A

Based on our classroom observation, we thought that both the principal and the in-service and pre-service teachers played important roles in developing innovative curriculum. Slattery (2017) also stated that "the mission of laboratory school teachers working collaboratively with teacher educators who instruct undergraduate pre-service teachers is to serve the larger school community by working to improve instructional practices and techniques in education (p. 30).

The principal at Lab School B indicated that student-centered, collaborative and technology-based learning environments are the key factors of the school's innovative curriculum:

> *Students are part of a social group in which everyone learns to help each other. Students should be challenged to use their creativity to arrive at individual solutions to problems. The child, not the lesson, is the center of the teacher's attention; each student has individual strengths which should be cultivated and grown through the technology-based learning environment.*

Both schools look for distinctive, innovative and creative curricula as they work with in-service & pre-service teachers, parents and students.

The Lab School Partnerships

The relationship between the laboratory school and the affiliated university can be explained as an exosystem. Both laboratory schools have been supported not only by administrators, teachers, students, and parents but also by the affiliated universities. The lab schools and universities significantly and mutually recognize "the value of and relational nature of research, reputation and revenue" (Jozwiak & Vera, 2016, p. 18).

In the lab schools, in-service and pre-service teachers' new pedagogy and teaching methods such as the project approach or technology-based curriculum can be applied flexibly or accepted because of the principals' leadership and parents' support. For instance, a University A administrator said,

> *We are working hard to educate our future teachers who are confident and passionate in the fast-changing global society. Our Lab School A is a model school well-maintained by the collaborative efforts of the local government office, University A, in-service and pre-service teachers, parents and their children. The field-based curriculum at University A is possible and successful because the Lab School A is exemplary in our town.*

Similarly, a University B administrator said,

> *We are so proud of having the Lab School B where our students [i.e., pre-service teachers] learn from current excellent teachers and deal with various issues working with diverse parents and their children. This is a nice fit for our University B. When the Lab School B is successful with a great reputation among parents, our University B can be also great and successful in this island. We [i.e., University B and Lab School B] are inseparable!*

The lab schools have maintained a high quality of teachers, facilities, and various educational resources through active partnerships with the affiliated universities (i.e., teacher education) as an example of exosystem.

Conclusion

We analyzed the two lab schools in South Korea in light of Bronfenbrenner's ecological theory and found four factors that distinguish these two lab schools from other schools in South Korea: (1) lab school mission and philosophy for social reform, (2) lab schools' various roles in students' intellectual development, (3) project approach and technology-based curriculum as the innovative curriculum of lab schools and (4) lab schools' strong partnerships with the affiliated universities. We concluded that the two lab schools are a good model that can influence other public and private elementary schools positively in South Korea.

> John Dewey stated that "I believe that the school is primarily a social institution. Education being a social process, the school is simply that form of community life in which all those agencies are concentrated that will be most effective in bringing the child to share in the inherited resources of the race, and to use his own powers for social ends. I believe that education, therefore, is a process of living and not a preparation for future living" (Dewey, 1897, p.1).

The collaborative efforts and on-going systematic reforms among system members such as school administrators, teachers, university administrators, university faculty members, teacher candidates, parents, students and the local government officers of education are vital in achieving and maintaining the high-quality educational environment of the lab schools.

Limitations and Implications

The generalizability of this study is limited because we only visited two lab schools for a limited time. We will need to visit and observe a few more lab schools affiliated with higher education institutions in South Korea and spend more time to obtain more objective outcomes. For instance, when a teacher wanted to tell us some challenges that she personally faced, we could not hear about it in detail because of the limited time for the visits. It would be a good idea to use an on-line survey for the school teachers in the future. Cross-cultural study is also necessary to be able to compare the lab schools in the U.S. with the lab schools in South Korea.

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The Challenge of Open Space: Lessons from a Pioneering School Building Layout in Germany

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1. Introduction

In a school building without walls, how do students and teachers organize their days? How far have the promises of open-space schools—which were first conceived and developed in the 1960s and 1970s—actually been fulfilled, and what drawbacks can be uncovered? For example, to what extent does open-space architecture actually facilitate co-teaching and method diversity? These questions—and several more that follow from them—are at the center of this paper. It attempts to answer them by discussing the development of the Laborschule Bielefeld (Germany), one of the best-known laboratory schools in Europe, and at the same time one of the best-known open-space schools of the continent. As such, the Laborschule has almost no conventional classrooms. Instead, students and teachers spend their schooldays in a "semi-open learning environment" (Haebler, 1973, p. 74) that offers diverse types of gathering and work spaces.

But before the questions raised above can be addressed, it is important to put the goal and architecture of the Laborschule Bielefeld into context; this is why this paper begins with a short overview of the German school system (section 2) as well as the history and pedagogical concept of the Laborschule (section 3). The following two sections describe the open-space concept of the Laborschule in more detail (section 4) and present the results of a survey that recorded how the staff (teachers and others) perceive and assess this concept (section 5). The concluding section finally discusses the implications for the future of the Laborschule in particular and the discourse on the open-space concept at large (section 6).

2. The German school system: a short overview

In Germany, school attendance for all children has been compulsory for almost a hundred years. This means that every child living in Germany is required to attend a public school, or in rare cases a private school, for at least nine years after they turn 6 years old. Each school career starts with the four-year Grundschule (literally, basic school or fundamental school). In this so-called "Primarstufe" (primary level), all students are jointly instructed regardless of their family background and aptitude. However, an institutional ability grouping takes place after the fourth grade—the transition to Sekundarstufe I (secondary level I). This means that children with seemingly different abilities are accordingly categorized into different education tracks: Hauptschule, Realschule and Gymnasium (literally, Hauptschule means main school, the term Realschule was originally intended to mean something along the lines of practical school, and the term Gymnasium is derived from the Greek word *gymnasion*). The Hauptschule is supposed to prepare their students for a vocational training to be completed after the 9th grade, and the Realschule aims at an extended general education by awarding the "mittlere Reife" (approximately comparable with the American high school diploma) after the 10th grade. On the other hand, the Gymnasium as the most traditional institution is the top of the German education system: This is where, each year, the "most talented" students (in terms of their cognitive abilities) are prepared for the Abitur over the course of nine years, which in turn allows them to attend a university. This so-called "polynominal" German school system, which has been described here in a somewhat simplified manner[1], has changed slightly over the course of its history, but its basic principle has remained the same for almost a hundred years. At the age of about ten years, teachers and parents make a decision on the future path of each individual child, which is difficult to reverse afterwards.

The most noticeable changes were made to this school system after the end of World War Two. At this point, it is important to note that this paper is only concerned with

1 For a more detailed description, see Secretariat of the Standing Conference of the Ministers of Education and Cultural Affairs of the Länder in the Federal Republic of Germany, 2015.

the school system of the former West Germany (the Federal Republic of Germany). The school system of the former East Germany—the socialist so-called German Democratic Republic that was founded in the Soviet occupation zone shortly after the war—was quite different. The focus here will be on West Germany for two reasons. First, that is where the Laborschule was founded. Second, when West Germany and East Germany were unified in 1990, the West German school system was largely transplanted into the eastern part of the country.

After the end of World War Two, the hierarchical structure of the German school system was viewed by the Western Allies as having contributed to the support by the German people of the militaristic and totalitarian Nazi regime. This point of view resulted in the first attempts towards the end of the 1940s to transform the existing school system into a "comprehensive school" modeled after the American high school. However, these efforts failed at first and were not resumed until the mid-1960s. In response to the catastrophic state of the German education system numerous efforts were made to fundamentally reorganize the existing school system in Germany. The most important building block of these reform efforts was the introduction of the so-called "Gesamtschule" (comprehensive school). It was supposed to bundle the different "elements" of the previous secondary level I and II together in one consolidated school—because that is precisely the meaning of the term "Gesamtschule:" complete school—a comprehensive school which serves all students. Although the Gesamtschule today, more than fifty years later, has established itself as a popular school form in many parts of Germany, it has ultimately not been able to replace the polynominal nature of the German school system, but merely to supplement it with another element or track.

3. The Laborschule Bielefeld

So at the end of the 1960s, an attempt was made to introduce the Gesamtschule on a large scale throughout West Germany. It was at this very time that the Laborschule was founded in the city of Bielefeld. Their founder Hartmut von Hentig began his study of Classical Philology in Germany, but finished it in the United States (more precisely, in Elizabethtown and Chicago). He then completed his graduate work from 1952 to 1953 in Chicago before he was appointed to the tradition-steeped chair for pedagogy at the University of Göttingen (Germany) in 1963. There, he quickly developed the reputation of a progressive and far-sighted school pedagogue. He soon became a suitable candidate—not least against the background of his experiences in the U.S.—to take a leading role in the attempt to introduce "Gesamtschulen" throughout the country (cf. Oelkers, 2009). In this spirit, he was also appointed to the University of Bielefeld, which had just been founded in 1966—and thus to a university with the explicit goal to fundamentally reform the content and structure of the German education system.

Against this background, Hentig tied his commitment to work at the University of Bielefeld to the condition that he could establish two school projects in Bielefeld directly associated with the university: The "Laborschule" (literally, laboratory school) and the "Oberstufen-Kolleg" (literally, secondary-level II college). He wanted both institutions, opened in September 1974, to not only develop new pedagogical methods, but also serve as an "observation, experience and experimental field for the educational sciences" (Hentig, 2006, p. 7)[2] of the affiliated university. Hentig repeatedly used John Dewey's Laboratory School, founded in 1894 in Chicago, as a conceptual point of reference and an educational policy argument. So Hentig not only adapted the name of Dewey's school, he also adopted many of Dewey's pedagogical and scientific principles such as a focus on the idea of "experience", the concept of the school as an "embryonic society" or the close connection to the university (cf. Kleinespel, 1998; Oelkers, 2009).

Thus, both schools are consciously designed as experimental schools with a framework that allows teams of scientists and teachers from various professional backgrounds to work on the development, testing and evaluation of didactic as well as curricular innovations. The aim is to systematically investigate fundamental questions of education, to test reform models within the reciprocal relationship between theory and practice, and to test their transferability to the existing educational institutions (cf. Hollenbach & Tillmann, 2009). While the Oberstufen-Kolleg (OS) tried to combine secondary level II with parts of the university's basic curriculum, the Laborschule (LS) concept is based on a direct link between the primary level and secondary level I. Since its opening in September 1974, the LS has accepted 60 students each year at the age of five (and thus even one year earlier than the traditional primary school), leading them to all types of school-leaving certificates that are currently awarded after the 10th grade by the more traditional schools in Germany. LS graduates can either move on directly to vocational training, depending on their level of performance and interest, or continue on to secondary

2 The sources for all direct quotations in this paper are originally in German. The translations used here were prepared by the author of this paper.

level II and then to a university (see fig. 1).

Although the LS thus combines several school types in this sense, it still has a clear division into four different school levels: All LS students spend their first three years in a mixed class of about 16 five- to seven-year-old boys and girls (the so-called level I) until they progress to a different group at the beginning of third grade (which is actually the beginning of their fourth year at the school since they started one year earlier than usual). They spend another three years in groups of 21 children of various ages on that level, which is called level II. At the beginning of sixth grade, the students move from level II to level III (grade 6 and 7) and then on to level IV (grades 8 to 10). On levels III and IV, the students are no longer taught in mixed-age groups as they were before (or at least to a lesser extent). So starting in grade 6, each individual class is made up of students who are usually no more than twelve months apart in age, just like their peers at traditional schools.

However, the basic pedagogic approach to renouncing any form of *external* differentiation is common to all levels. This means that teaching at the Laborschule takes place in a single, and thereby inevitably very heterogeneous, group for all students regardless of gender, achievement or any special educational needs, which is why teachers have to adapt their lessons to the individual needs and abilities of each student (cf. von der Groeben, Geist & Thurn, 2011). Further characteristic features of the "Laborschule" pedagogy are

- The extensive renunciation of grades, examinations and homework
- The wide range of elective subjects
- The diverse educational offers in breaks and afternoon sessions
- The large extent of democratic participation by the students in matters of everyday school life
- The high priority of social learning

4. The open-space concept of the Laborschule and

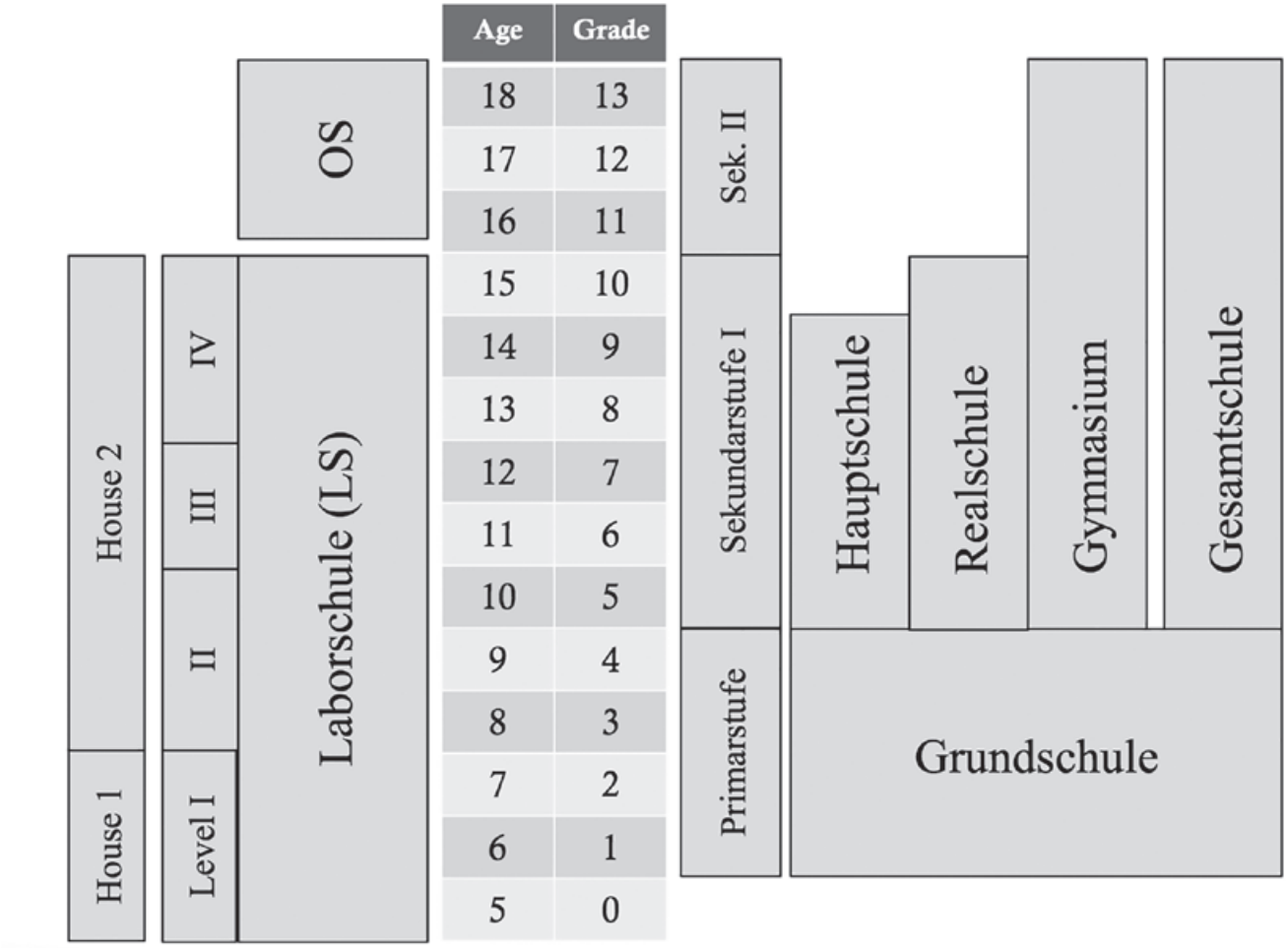

Figure 1: The Laborschule Bielefeld as compared to the conventional structure of schooling in Germany.

its educational aspirations

However, a special challenge for the Laborschule education in this aspect is to implement all these pedagogical demands and requirements in a very special building—which brings us to the main topic of this paper. Since its opening in September 1974, the LS has not only taken a "special position" (Benner & Kemper, 2007, p. 322) in the German school system through its concept as a state experimental school but also due to its architectural design. As a particularly prominent representative of the model of the "Großraumschule", which was highly debated in Germany in the 1970s (cf. Blömer, 2011; Zinner, 2014), it renounced the spatial separation of individual groups in classrooms almost completely (cf. Huber & Thormann, 2002; Harbusch, 2015). Instead, the idea was to teach all students in a "semi-open learning environment under one large, uniform roof" (Haebler, 1973, p. 74). The term "Großraumschule" literally translates to "large room school" and is equivalent to "open-space school" or "open-plan school" in English-speaking countries. Specifically, this means that the LS consists of a total of two buildings whose dominant structural feature is the idea of open space: The smaller "House 1", where students from grades 0 to 2 are taught, and the much larger "House 2" for grades 3 to 10. (See Fig. 2)

This open-space concept was always meant to serve various educational aspirations, which Hartmut von Hentig (1997) summarized as follows:

1. *The creation of a civilizing society:* "Where the eyes of many are watching, people will conduct themselves in a humane manner. In an open-space school, under the public eye and ear, there are no screaming teachers and no students who behave in a manner that makes the teacher resort to raising his voice in desperation." (p. 148)

2. *Preparing for the world "out there"*: "A large part of life of most of these students will take place in situations similar to those of the open-space of the LS. The students must be able to concentrate in the presence of others who do different things, put up with a certain amount of movement and noise, and, more importantly, behave themselves so as not to disturb the others." (p. 148)

3. *Opening up to the school community:* We were "hoping that the feeling of security in the small core group would go hand in hand with opening up to the larger community: The security of the small 'home area' should foster the students' curiosity for the world, and vice versa; the boundlessness should evolve into joy and a clear sense of accountability." (p. 149)

4. *Promoting awareness of the whole*: The original draft of the buildings intended that "every student of the Laborschule experiences the school as a whole at least once a day on the way from the entrance to his 'workplace', and that the child sees what is happening 'above' him or her, in the world of the big kids, so that he or she can take pleasure in it or measure up to it, and 'under' him or her, in the world of the smaller kids, so that he or she can estimate their own progress." (p. 157 f.)

In addition to all these aspirations, the founders of the LS had another one for which they used the term "flexibility". In fact, Ludwig Huber stated that this was perhaps even the most important aspiration from a didactic point of view: "[The hope] that the students and teachers would form groups based on what the task and the occasion require: Sometimes individually, other times in small groups, then again in large or even very large groups, depending on what the particular situation calls for, whether it be researching, reading and writing, discussing, cooperating, presenting, or simply listening; and that they can easily move from one area to another, depending on whether the work requires using your head or if it involves manual crafting and experimenting. For that reason alone, it is very important that everyone is able to easily move from place to place. Therefore, there is no need for walls that block the view and limit the size of the groups, and there is no need for doors and hallways that make moving around difficult." (Huber & Thormann, 2002, p. 67)

For example, booths were built, privacy panels were installed, provisional walls erected, fences raised. Similarly, disputes this is the theory. But what first comes to mind, when looking at pictures from the first years of school life—such as figure 2, which shows the open space of the Laborschule right after its opening in 1974—is the emptiness of the building. This is due to the fact that it was only slowly "filled". Although by now, it has a total of 700 students spread over 36 groups, it initially started with only 180 students divided into 9 groups, so that it took a total of four years to reach capacity for the first time. Accordingly, in the first years after the opening of the school, the school continuously changed its appearance: Booths were built, privacy panels were installed,

Figure 2: Volkmann, J. (Photographer). (1974) House 2 of the Laborschule Bielefeld

Figure 3: Mette, V. (Photographer). (2015) "Versammlung" at House 1 of the Laborschule Bielefeld

provisional walls erected, fences raised. And: Disputes started over the open space. Again and again, people criticized the excessive volume, complained about the lack of space and pointed out the difficulty of teaching in an adequate manner in the open space (cf. Rosenbohm, 1977; Hentig, 1997) "The Versammlung" (see fig. 3).

In the course of the 1980s, however, everyone learned gradually to deal with the existing building, and the arrangement that people found back then remains in use to this very day. Thus, three groups are located on each of the three large so-called "fields" of House 2, sharing the available space—though with more or less clear marking of separate zones for the individual groups. The social as well as spatial center of each group is formed by the so-called "Versammlung" (assembly): A meeting place, mainly consisting of wooden benches, on the edge of the open-space area, where the group meets repeatedly throughout each school day in order to split up afterwards into individual, partner or group work in the adjoining open space. The same goes for House 1: Three groups each share a common zone within the building and practice a fluent transition between individual work, partner work and group work in teams that are continually formed and re-formed, so that students work together with a different combination of their peers throughout the day. Here again, the repeated center of focus is: The Versammlung (see fig. 3).

5. Results on the perception and assessment of the open-space nature of the Laborschule

Although dealing with the open space of the LS has certainly "normalized" over the years, the sentiments of the teachers and students towards "their" section of the open space are still quite ambivalent. For example, this was demonstrated in a study published by Gail Weingart in 2003, in which a total of 653 LS students—over the course of 9 years—were asked about their perception and assessment of the open-space nature of the "Laborschule". The analysis of the data collected by Weingart in this study produced two key takeaways:

1. "More than half of the students surveyed see advantages of the open space in its function as a *social place*. Most of the students are comfortable in these surroundings and appreciate the fact that the open space fosters friendships." (Weingart 2003, p. 71)

2. "However, they see disadvantages of the open space as a *learning location*. More than half of respondents report that they are often distracted in the open space, and almost half report that they are prevented from focusing on work. Originally, it was hoped that the open space would have a positive influence on the behavior in such a way that the students learn to be considerate of others. Conversely, they were supposed to learn to concentrate in the presence of others, even if they move around in the room and make noises. According to the results presented here, these hopes seem to have been [only] partially fulfilled." (p. 71 f.)

In addition, Weingart could confirm a result that Beate Wischer had already formulated a few years earlier. Just like Weingart drawing on the results of a periodic survey of the graduates of the LS, she postulated: "The capacity for focusing on and attending to one's own work, which is especially required in the open space, seems to be more difficult to attain for some students than others - espe-

cially for boys. As a result, the 'open-space' learning arrangement can favor certain groups of students, especially those for whom learning is obviously easier" (cf. Wischer 1999, p. 46). Thus, the assessment of the open space of the LS by the students is very ambivalent: On the one hand, the students certainly regard this layout as a strength of their school and they would not want it to be replaced by traditional classrooms. On the other hand, however, the openness of the available premises appears to not have developed its full potential, especially with regard to their function as a *learning location*—as well as with regard to the weaker students.

In light of these results, an expansion to the LS was finally built in 2001, also designed as an open space, which since housed grades 9 and 10, and thereby significantly relieved the "old" open space of House 2, which had become a bit crammed. Nevertheless, the buildings of the LS remain a much-debated issue—and this is not only due to its now significantly increased age. More than forty years have passed since the opening of the school in 1974, which is not only reflected in the general condition of the buildings, but also in terms of obsolete media equipment, high energy consumption, and outdated safety standards.

For these reasons I initiated a research project in the summer of 2015, together with two teachers of the LS, Jutta Walter and Marlena Dorniak, which had a double agenda under the guiding theme "school as an inclusive space". On a general level, we were interested in making an empirically-driven contribution to the current discussion on "school architecture", but on a local level, our research project also aimed to facilitate a school development process that ultimately attempted to improve the utilization of the "Laborschule" open space (cf. Zenke, Dorniak & Walter, 2015). In that regard, we conducted a survey of all LS employees in the fall of 2016—teachers, special needs teachers, social workers, educators, secretaries and janitors—in which we asked about their use and perception of the "Laborschule" building. The participants were asked to answer the following three questions in writing:

1. Which spatial conditions at the LS do you particularly like?

2. Which spatial conditions at the LS do you not like at all?

3. What would be your three biggest wishes for a remodeling of the LS?

The results of this survey, which we subsequently analyzed using methods of the qualitative content analyses according to Kuckartz (2016), allow conclusions to be drawn; particularly about the perception and use of the LS *open space*. We were quite surprised to find that 60 of 73 people surveyed, and thus 82% of all participants, considered the open space and the associated openness of the building something they "particularly like" about the LS. Divided by the individual professions. The result was even clearer: 37 out of 41 teachers (90%), 8 out of 11 employees in the probationary year (73%), 10 out of 12 other pedagogic workers (83%) and 4 out of 8 other employees (50%) expressed a positive opinion about the open space (plus one person who didn't indicate their profession).

In addition to the praise of the school's "landscape-like architecture", the emphasis was on the "transparency and openness" associated with the open space. Furthermore, it was described as "inviting", creating a "community atmosphere" and a "feeling of freedom". Twenty respondents highlighted the positive impact of the open-space area in regards to cooperation and considerate behavior. They felt that the open space opened up various "contact opportunities", promotes "exchange + communication with the neighboring groups", provides various gathering opportunities and ensures that friends and colleagues are "near [or] on hand". They also pointed out that this setting did not only enable students to help each other "across the various groups" but it also allowed the colleagues to be "more open in their teaching methods and able to cooperate spontaneously with others". Appreciation was also expressed for the flexibility of the open space, including the fact that the furniture is well-suited to be rearranged as needed (9 people gave this answer), as well as for the regulating power of the "Public Eye" (by 3 people).

Although the basic *principle* of the open space was generally judged positively across all professions, the concrete *implementation* of this principle in the various segments of the school was evaluated quite differently. In particular, House 1 with its mixture of open areas, opportunities to retreat and go outside, was repeatedly described as the most successful form of the open space; whereas the extension building was criticized for its narrowness and bad acoustics. A teacher at level IV said: "I really like the open space idea and find it exemplary in House 1, good in House 2, but bad in the so-called new building because of the bad acoustics."

But this criticism was not only directed at the open space of the *extension building*. In fact, many people criticized the general acoustics and ventilation of the *entire*

open-space area. What is more, the survey participants pointed out the general need for renovations, as well as complained about the lack of available space; particularly in the areas of the extension building and in the teaching areas of level II. However, the greatest criticism of the open space was directed at the lack of *opportunities for retreats* within and near the open space. For example, 31 people (42%) complained that there were too few "places of retreat for adults and students" and demanded "more rooms with walls and doors for spontaneous use", "back-up rooms integrated into the open concept", "retreat areas to work, to rest, to be loud", small "glass-walled rooms or learning offices", "resting areas" or "alternative possibilities for small groups".

This makes one thing quite clear: The staff is not concerned with having additional *specialist* rooms at their disposal, such as rooms dedicated to the natural sciences or the arts, which do exist in limited number in other parts of the building. Rather, they desire the open-space area be supplemented with retreat opportunities of different sizes and openness that they would then use in a flexible and spontaneous way which should be situated right at the edge of the open space. So a central result of our survey is the staff's request that the open-space area be retained as a structurally dominant element of the LS, but at the same time, it should be supplemented and thereby improved through: a) flexible retreat opportunities within or near the open space b) more direct exits to the outside (ideally from any area), c) more effective noise reduction through structural improvements (maybe sound-absorbing elements), and d) better ventilation (ideally through large, easily opened windows).

6. Conclusion and Implications

Fortunately, the owner of the LS buildings, the state of North Rhine-Westphalia, are now convinced of the necessity of basic renovations—or even a more extensive remodeling. To prepare for this, a participative process was initiated in January 2017, within which the architects' office *Hausmann Architects*, together with teachers, students, other employees as well as representatives of the state, are working on a review and adaptation of the LS room structure in pedagogical and construction terms—a process which will be supported by the results of our research project that have been outlined above. The goal is to develop an appropriate vision of how the LS buildings should ideally be structured in the future. This process is meant to consider the input of all current users of the LS buildings and take into account all available robust empirical research results. The central question is: How can the benefits of an open-space concept be retained while the drawbacks and weaknesses are rectified?

As we are nearing the end of this paper, it is important to note that the experiences and results of our research work (which will be supplemented by an videographic study on the use of the LS open space in the course of 2018), are not only relevant for the *LS*. On the contrary, the concept of open space as a suitable spatial arrangement of school life as well as learning has become increasingly important in the current German-language discussion on school architecture (cf. Zenke, 2016). At the same time, there are few actual implementations of the open-space concept in Germany. In fact, the LS is the only German "survivor" of the 1970s open-space school boom. That is why it plays an important role in the corresponding discussion. The opportunities and risks of the open-space principle can be analyzed, discussed, evaluated and developed further by looking at the history as well as the current state of the LS.

Obviously, a single implementation of the open-space principle (such as has been presented in this paper) has its limits as an empirical basis for this discourse. That is why the following two highlighted theses emphasize the central result of the research as well as introduces the current presented here, will certainly need to be discussed and tested not just in the context of the Laborschule Bielefeld, but introduced into the wider discussion on the subject—more specifically, the international discussion, seeing that countries other than Germany have a vibrant tradition of open-space schools as well:

1. Open-space school architecture can provide a very suitable framework for the implementation of a school life that is simultaneously individualizing as well as community-promoting. This potential depends on whether it is possible to create an appropriate balance between openness and closeness; in terms of architecture as well as pedagogy.

2. Teaching in the open space therefore needs its own "open-space didactics." That is, teaching strategies that enable the individual teacher to use the openness of the building productively for his or her teaching purposes. This is because the attempt to work with the usual methods of classroom teaching in the open-space area inevitably leads to frustration and lack of success. In other words, if you change the structure of a school building, it is essential to change the teaching methods of the school as well—and vice versa.

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Exploring Preschool Teachers' Narrative Comprehension Knowledge and Instructional Practice

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Background: *Narrative comprehension is an important component of early childhood instruction. The skills used to understand narratives are core to later reading readiness and comprehension.* **Purpose:** *A narrative comprehension learning gap was identified in a large charter network. This study aimed to explore those charter preschool teachers' narrative comprehension knowledge and practice.* **Methods:** *Methods included classroom observations and a semi-structured interview with teachers.* **Findings:** *There were three overarching trends: (1) teachers defined narrative comprehension as story structure; (2) teachers used knowledge and recall questions as the primary instructional strategy for narrative comprehension; and (3) teachers learned about narrative comprehension through on-the-job workshops. Despite limitations of the methodology, the findings indicate school leaders should seek to understand teachers' knowledge of narrative comprehension given the critical nature of this competency.*

Introduction

Children's understanding of narratives begins long before they learn to read. Sources such as television and movies, peer play, aural stories at home, and stories read from books contribute to children's budding schema of stories (Burris & Brown, 2014; Lepola, Lynch, Laakkonen, Silvén, Niemi, 2012; Paris & Paris, 2003). Although reading involves decoding and comprehension (Kleeck, 2008; Gough & Tunmer, 1986), much of early narrative comprehension focuses on using oral and visual information to make meaning, not print (Burris & Brown, 2014; Kleeck, 2008; Paris & Paris, 2003). This meaning-making process includes three elements for early narrative comprehension: (a) knowledge integration; (b) goal understanding; and (c) causal inferencing (Burris & Brown, 2014; Brown et al., 2011; van den Broek et al., 2005).

Elements of Early Narrative Comprehension

Knowledge integration involves combining and applying prior knowledge to new stories (Best, Floyd, & McNamara, 2008; Burris & Brown, 2014; Snow, 2002). Prior knowledge may include general world knowledge, such as geography, vocabulary, and story grammar, among other domains (Best et al., 2008; Burris & Brown, 2014). Knowledge of story structure may particularly be important because it provides a consistent framework, allowing children to focus on story content and reduce demands on working memory (Baddeley, 1992; Best et al., 2008). Further, story structure, particularly when addressed through explicit instruction, aid retention and transfer of knowledge to new story experiences (Fuligni, Howes, Huang, Soliday Hong, Lara-Cinisomoc, 2012; Garner & Bochna, 2004). Because of this, many early childhood narratives consist of a predictable chronological structure, main character(s), easily identifiable problem or goal, and goal outcomes (Best et al., 2008; Burris & Brown, 2014; Trabasso et al., 1992; Williams, Hall, & Lauer, 2004).

Second, children use *goal understanding* to analyze narratives from a character's lens (Burris & Brown, 2014; Trabasso, Stein, Rodkin, Munger, & Baughn, 1992). This is demonstrated by the child's ability to identify: (a) the catalyst event, (b) a character's primary goal, (c) attempts to reach the primary goal, (d) results of the

attempts, and (d) the final outcome. (Burris & Brown, 2014; Lynch & van den Broek, 2007; Pyykkönen and Järvikivi, 2012). Goal understanding relies on the ability to pull from and apply prior knowledge, such as identifying a main character to follow, which requires general knowledge of story structure (Garner & Bochna, 2004). Once goal understanding is established children are able to use it to make sense of a story (Wenner, 2004). When children understand goal-directed structure they are able to link character motivation to events in order to have a fuller understanding of the narrative beyond basic story grammar. Preschool-aged children may begin to answer some questions, particularly when provided guided opportunities, such as: *Why is the character behaving this way?* (Fuligni et al., 2012; Lepola et al., 2012; Wenner, 2004).

Finally, *causal inferencing* includes applying the first two elements and the ability to make connections in the story, enabling children to create mental maps of narratives (Burris & Brown, 2014, p. 167; Oakhill & Cain, 2003; Trabasso & Suh, 1993). While it may seem such connections require higher order thinking to be taught first, causal inferencing is tied to both knowledge integration, particularly story structure, and goal understanding (Taylor, Pearson, Peterson, and Rodriguez, 2003; Wenner, 2004).

Knowledge integration, *goal understanding*, and *causal inferencing* are key elements that enable children to understand narratives (Lepola et al., 2012; Oakhill & Cain, 2003). Though preschool children are not expected to master all three, as they develop over time, these elements are tied to preschool narrative comprehension and listening competency success, and later academic and independent reading success (Lynch, Broek, Kremer, Kendeou, White, & Lorch, 2008; Pressley, 1998, Tompkins, Guo, & Justice, 2013).

Teacher Knowledge and Practice

Children need systematic, direct instruction to identify story structure and be able to understand and apply *knowledge integration*, *goal understanding*, and *causal inferencing* (Oakhill & Cain, 2003; Fuligni et al., 2012). Though early childhood classrooms host frequent story-times discussing picture details, answering simple recall questions, or providing opinions of the story (Gianvecchio & French, 2002), these activities do not develop narrative understanding. Teacher subject-matter knowledge is often considered to be the most important teacher-level factor for supporting child-learning outcomes (Diamond et al., 2014). Thus, teachers need specialized knowledge of story structure, as well as *knowledge integration*, *goal structure*, and *causal inferencing* if they are to provide rich instruction during read alouds (Diamond et al., 2014).

Study Design

This study was designed to explore narrative comprehension trends found in student data across two school years. The dataset was drawn from a charter network in two large, urban cities and included 12 local education agencies (LEA), with a focus on four classrooms from three LEAs. Some of the LEA's consisted of multiple school sites in their respective city. The LEAs operated as independent pilot and implementation sites for a variety of studies on professional learning, curricula, or assessments.

Procedure

A case study approach was used to explore the narrative comprehension knowledge and practice of teachers within a large charter network. The study aimed to answer the following:

> What knowledge and understanding do classroom teachers have of narrative comprehension in the early childhood setting?
>
> How do teachers use that knowledge to address narrative comprehension instruction with children directly?

To answer these questions two types of data were collected:

1. *Read aloud classroom videos.* Researchers visited classrooms on three separate occasions. Each visit included a read aloud observation that was videotaped, resulting in 12 observations, approximately 30-40 minutes each. Teachers were made aware the target skill was narrative comprehension.

2. *One-on-one teacher interviews.* At the conclusion of the third observation, teachers were interviewed using a semi-structured protocol that aligned to narrative comprehension literature. Questions focused on teachers knowledge of narrative comprehension content and strategies used to teach it. Questions included, "When in the year does narrative comprehension instruction start? Why?" and "Describe how you teach inferencing."

Data Analysis

Prior to the analysis of interview and observation transcripts, a codebook containing 32 narrative comprehension codes was created. These codes aligned to narrative comprehension literature for preschool classrooms. Codes included items such as "character instruction" and "setting." The codebook was revised during analysis to reduce overlap in codes and to align with current literature. For example, codes were generated for "checks for understanding" and "problem and solution." Table 3 provides an excerpt from the codebook, which ultimately included 52 codes.

Trustworthiness. Several generally accepted practices were employed for trustworthiness. First, following each visit, two team members transcribed the videos and reviewed the transcripts for accuracy. Then, two researchers co-coded the first observation transcript separately using the original codebook. The coding was reviewed to identify convergence and divergence. In areas of convergence, codes were maintained and dimensionalized (see Table 3 for codebook excerpt). In areas of divergence, consensus was built to improve code definitions or replace the code. Finally, researchers created analytic memos using note-taking and graphics to identify code relationships and other trends.

Sample

Four classrooms, each from different schools, were selected for participation. Three of the classrooms represented student achievement with student growth in the upper quartile for narrative comprehension, representing extreme cases (Flyvbjerg, 2006). The fourth class represented typical performance of the overall network. Children were assessed twice using the *Every Child Ready: Language and Literacy* before selection and these data were used in the selection process. Classrooms in this network have two to three full-time teachers. Additional teacher demographic data were not available during this study.

Every Child Ready: Language and Literacy Assessment. Children in the network were assessed using the *Every Child Ready: Language and Literacy* (ECR:LL) assessment. The ECR:LL was validated using the Peabody Picture Vocabulary Test (PPVT4; Dunn & Dunn, 2007) and Test of Preschool Early Literacy (TOPEL; Lonigan, Wagner, Torgesen, & Rashotte, 2007) and was determined to be a reliable and valid measure of language performance (AppleTree, 2011). This direct assessment uses a short story to evaluate narrative comprehension. A construct analysis revealed that three- and four-year-olds were unable to meet benchmarks for narrative comprehension. Figure 1 shows the growth of all classrooms in the network, approximately 1,300 children, during the 2015-2016 school year. Figure 2 compares participating classrooms to the network, 1,400 children and 270 teachers during the 2016-2017 school year.

Student Demographics. Tables 1 and 2 summarize student race and lunch status. Since schools are not required to provide this information, the summary does not include all the children in the charter network. However, the majority of students were African or African-American and classified as free-lunch status. The classrooms that participated in this study were representative of the larger 12-LEA network. This information is valuable in understanding the context of this work.

Findings

Teacher Narrative Comprehension Knowledge

During post-observation interviews, teachers appeared to have difficulty describing narrative comprehension (see Figure 3 for an overview of teacher response trends). When asked to describe narrative comprehension, responses generally did not describe the whole of narrative comprehension. A teacher in Classroom 2 gave a typical response, "I think [narrative comprehension is] understanding...what the book is about and the different... facets of the book like the characters, main characters, settings, and being able to sequence that." Another teacher described narrative comprehension in terms of conceptual understanding, vocabulary instruction, and general expressive language.

> Narrative comprehension, to me, is being able to have the kids conceptually understand what is going on clearly by showing pictures and having them understand what words are. Giving them hints and clues so that they're able to answer questions in a way that they're understanding and they're using expressive language. (Classroom 1).

Overall narrative comprehension was described by teachers as consisting of:

- characters and main characters;
- setting;
- sequencing events immediately after a read aloud; and
- print knowledge, such as title and author.

Each of these items are linked to knowledge integration, as prior knowledge, rather than other elements of narrative comprehension.

Inferences and Story Structure. Teachers were also asked how they provide inference and story structure instruction. Responses revealed uncertainty of the meaning of inference. On two occasions the interviewer was asked to explain.

> Interviewer: How do you develop inference [with narrative comprehension]?
>
> Participant: Explain.
>
> Interviewer: Inference is something that's not stated in the [text]...
>
> Participant: So, I would use...the visuals, the pictures in the story to help with that...so the kids can...get an idea instead of hearing what's being read to them…(Classroom 3)

Teacher responses also demonstrated a limited understanding of story structure. Teachers discussed recalling "what we did the day before" as the means of developing recollection. One teacher described using repeated read aloud sessions of the same book to help children recall what happened. "Repetition is something I do...that... give us opportunities to read the stories more than once. That helps engage [children] and help them recall what has happened." (Classroom 3). Another teacher discussed recall: "We do that every day, just to remind the students and then we also do the sequencing at the end of [the story] so...they have to remember what...happened at the beginning, the middle, and the end of the book..." (Classroom 4). While repetition and recall of story information are important, they are considered lower-level in that the information can easily be found in the text or pictures. Discussion should develop higher order thinking around character goals and motivation in order to develop story comprehension (Lever & Sénéchal, 2011). Reference to goal structure and causal inferencing, however, was largely absent from the teacher responses.

Sources of Narrative Comprehension Knowledge. In describing the sources for their narrative comprehension knowledge, teachers expressed they had no coursework. Instead, teachers referenced their own teaching experience and on-the-job training as exclusive content knowledge sources. Principal-led workshops and one network-wide summer workshop were the only references to explicit narrative comprehension professional development.

Instructional Practice for Narrative Comprehension During Whole Group

Analysis of the narrative comprehension observations was paired with transcripts of interviews to allow researchers to analyze teacher practices with interview responses. Two overarching areas emerged from the analysis: (a) typical content for narrative comprehension instruction and (b) instructional strategies used to teach narrative comprehension during whole group instruction.

Typical Content: Narrative Comprehension in Read Aloud Lessons. The bulk of narrative comprehension instruction focused on characters, setting, and recalling events. And, there was minimal direct instruction on these story structure elements or others. However, this could be due to observations occurring midway through the year, after students have largely learned these elements of stories. Occasionally, a teacher would review a definition, such as character, during read alouds. A teacher from Classroom 1 explained, "A character is someone that we meet in the story. It could be a person or animal..." The complexity of such instruction varied. Here are two examples:

> Teacher: Who's driving the horsey?...So, who drove the, who drove the, who's driving the horsey into the, the who?(Classroom 2)
>
> Tyrone took Boland's sandwich. What did he do when he took his sandwich? (Classroom 3).

Almost 75 distinct references were made to characters in 12 read alouds. These included:

- pre-reading prompts to recall the names of characters in the story;
- pausing to ask the name of the character(s);
- pausing to ask about feelings of the character(s) with answers based on illustrations; and
- actions of characters, often based on the previous item.

Story structure elements related to goal understanding or causal inferencing, such as problem, goals, goal attempts, and solutions were not explicitly referenced.

Further, recollection references during time with children were unrelated to narrative construction or sequencing, instead focused on recalling a single event. For

example, "We know he put ice cream on his head. What else did Tyrone do to Boland?" (Classroom 3). There were infrequent incidents of recalling events focused on more complex thinking, such as compare and contrast. In this rare complex recall excerpt, a teacher from Classroom 2 prompted children to compare the beginning of the story to the end of the story.

> So, let's talk about what was the same at the end of the book and what was different at the end of the book...In the beginning of the book, it looked nice and pretty,...there were trees everywhere. What happened? How did it look at the end of the book that was so different?... So, the Lorax was there in the beginning, but was he there at the end of the book? Who was in the beginning of the story and who was at the end of the story? (Classroom 2)

In another classroom, the teacher attempted to address a character's emotions.

> Teacher: How do you think farmer Brown felt waiting for his answer, [Melissa]? How do you think farmer Brown felt waiting for the answer?...
>
> Child: Hmm. I see a…
>
> Teacher: How did farmer Brown feel waiting for an answer?...Did he feel happy? Did he feel nervous?...
>
> Child: He felt happy. (Classroom 4)

Although these were more advanced examples, they lacked teacher scaffolding to support students in skills beyond recollection, such as linking character emotions to a cause. Again, both goal understanding and causal inferencing are largely absent during observed direct instruction.

Finally, there was a considerable emphasis on print knowledge before reading each book, despite children having largely learned this content during the first few months of school. Teachers discussed the title, author, illustrator, and physical parts of a book. For example, Classroom 1 spent the first four minutes of the 25-minute read aloud block discussing print concepts. This may have been driven by teachers use of ECR:LL data, which focuses on print knowledge as well as narrative comprehension.

Read Aloud Instructional Strategies. The primary instructional strategies observed during read aloud instruction were: (a) visual aids; (b) vocabulary instruction; and (c) questioning. Teachers used separate *visual aids* and pointed to pictures to scaffold children's response to questions or support vocabulary. *Vocabulary instruction* included defining target words with an example of the word used in context. This occurred throughout all read alouds. *Teacher questions* were grouped by type which included: "knowledge or recall," "higher-order thinking," "observations," and "checks for understanding." Knowledge and recall questions occurred most frequently. They were generally questions about characters, setting, and events (see Figure 4 for a frequency of question types). Often teacher questions only required children to restate what was just said. For example, in Classroom 2, a teacher asked what the centipede liked to eat. The teacher had just read that the centipede eats other bugs, so the children needed only to repeat.

Teachers in classrooms that performed better on the ECR:LL tool asked children more higher-order thinking questions, and their knowledge or recall questions allowed for more open-ended expressive responses. For example, the teacher in the typical achieving classroom asked, "Was Boland someone we met in the story, friends?" By contrast, a teacher in a higher-performing classroom asked, "What does that mean when something is windy?" While coded as a *knowledge or recall question*, the question allowed a child to respond with definitions, examples, or relevant references to the text, rather than just stating a word or pointing.

Summary

Across classroom observations, teachers focused narrative comprehension instruction on basic knowledge integration, particularly prior knowledge for parts of a story, such as identifying characters and recalling single events. There were limited discussions of character goals, attempts, outcomes, or inferences. Narrative comprehension instruction strategies during read alouds consisted primarily of knowledge or recall questions. Finally, interview descriptions of narrative comprehension mirrored observed day-to-day narrative comprehension instructional practice.

Discussion

The purpose of this study was to explore teacher knowledge and instructional practice for narrative com-

prehension within a large charter network. The findings indicate that teacher knowledge of narrative comprehension was tied to narrative comprehension instructional practices. Teacher interview responses focused on characters, fact and event recall, and settings, which were largely what teachers targeted in instructional practice. Much of instruction focused on developing *knowledge integration* through vocabulary and basic elements of stories (Burris & Brown, 2014; Brown, Lile, & Burns, 2011; van den Broek et al., 2005). However, *goal understanding* and *causal inferencing* were omitted. These two elements, particularly causal inferencing, are key to narrative comprehension competencies (Burris & Brown, 2014; Brown et al., 2011; van den Broek et al., 2005).

Teacher practice reflected their interview descriptions of narrative comprehension (see Figure 3 for a summary of teacher descriptions). Story structure is important because it provides a framework on which new information can be attached and integrated. Yet, during classroom observations, teachers asked questions about story details but did not guide children to understand story structure or explain how to integrate information to understand the narrative. Story structure includes an initial catalyst or story problem and is critical to understanding character motivation (Burris & Brown, 2014; Brown et al., 2011; van den Broek et al., 2005). There was no direct instruction in story problems, character goals, attempts and solutions or causal connections, which can increase narrative understanding and allow children to engage more deeply with texts (Wenner, 2004).

Although a large portion of instruction was devoted to vocabulary acquisition, knowledge integration involves more than vocabulary knowledge. Knowledge integration requires children to understand the story arc and parts in order to reconstruct it and be able to make connections to other texts and their personal lives. When story prompts and discussions are limited to single events or single facts, such as character names, it becomes difficult for children to gain meaning from story narratives.

Though higher performing classrooms did not spend additional instructional time on story elements, they did tend to ask more questions and provide more language instruction. These instructional strategies develop stronger knowledge integration, which is necessary for narrative comprehension (Garner & Bochna, 2004; Wenner, 2004). Before the age of five, children typically can identify literal features of text even though they may not know the label (i.e. "Who was in the story?" If not, "Name a character in the story.") (Lepola et al., 2012; Stein & Glenn, 1979). However, explicit instruction is necessary to help preschool-aged children understand and identify items such as a character's goal when it is not directly stated (Lepola et al., 2012). It is likely that these classrooms were higher-performing as a result of increased focus on engaging children with prompts that elicit greater length and frequency of student responses.

Finally, teachers mostly asked literal questions that could be answered by looking at a picture or by repeating what a teacher said. By focusing on the literal levels of questions, teachers may fail to provide opportunity for inferential thinking (Oakhill & Cain, 2003). To develop causal inference competencies, teachers should have knowledge about inference in early learners and provide direct instruction and scaffolding, not simply teacher modeling and classroom exposure (Oakhill & Cain, 2003; Fuligni et al., 2012). Further, inferential instruction during narrative comprehension is an important part of developing inferencing and listening skills in children under five (Lepola et al., 2012).

Sources of Subject-Matter Knowledge

Teachers indicated that knowledge of narrative comprehension was from professional development from their school, principal, or other instructional leaders. Subject-matter knowledge is important both to student outcomes and teacher efficacy (Diamond et al., 2014; Garet, Porter, Desimone, Birman, & Yoon, 2001; Shallcross, Spink, Stephenson, & Warwick, 2002). Further, Diamond et al. (2014) propose a three-layer process for the relationship for professional learning and teacher knowledge. Professional learning affects teacher subject knowledge, which then affects student outcomes (Diamond et al., 2014). In order to contribute to this process, schools and districts should consider providing learning opportunities for narrative comprehension that include: (a) story structure, (b) goal understanding, and (c) causal inferencing. Further, given the research on question strategies, inferencing, and goal understanding, schools should consider professional learning for questioning during read alouds (Laing & Kamhi, 2002). The current findings support the need for school leaders to assess narrative comprehension knowledge of preschool teachers. By identifying the gaps in teacher knowledge, targeted professional development can be created that will develop strong early language and literacy skills in children.

Limitations

The case study was intended to inform an understand-

ing of teacher knowledge and practice for preschool narrative comprehension. It was focused on a large charter school network, drawing classrooms from four sites under one LEA. This exploratory approach, although likely informative for the network in understanding lack of student narrative comprehension growth, means findings will not necessarily generalize outside of these LEAs.

Further, additional statistical analysis needs to be completed to understand the story structures children learned earlier in the year, which were not evident in classroom observations and teacher interviews, given that data was only collected midyear. Finally, measures used may have some association with these findings, as teacher practices may have been influenced by the use of the ECR:LL tool and curricular standards. This could have cued changes in teachers' responses and practices based on how children are assessed.

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Tables and Figures

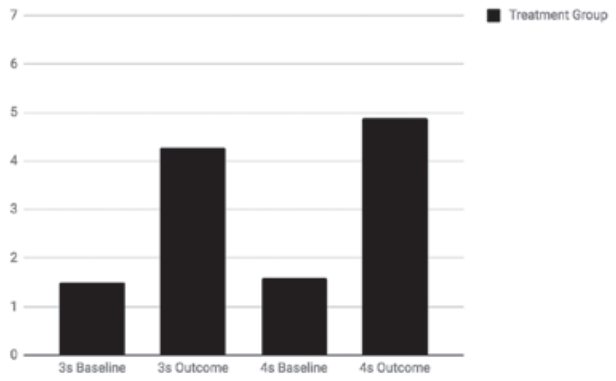

Figure 1. Preschool Growth in Narrative Comprehension During the 2015-16 School Year

Note: The three-year-old outcome target is 5 points and four-years-old outcome target is 6 points, out of 7 points.

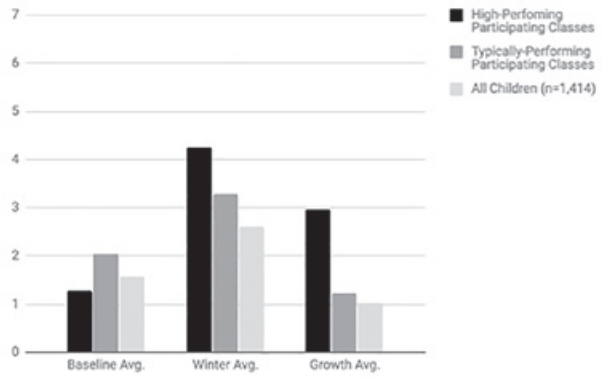

Figure 2. Student Narrative Comprehension Performance in 2016-17 on the ECR:LL Assessment.

Note that for this study three- and four-year-olds were not analyzed separately.

Figure 3. Summary of Teacher Descriptions of Narrative Comprehension

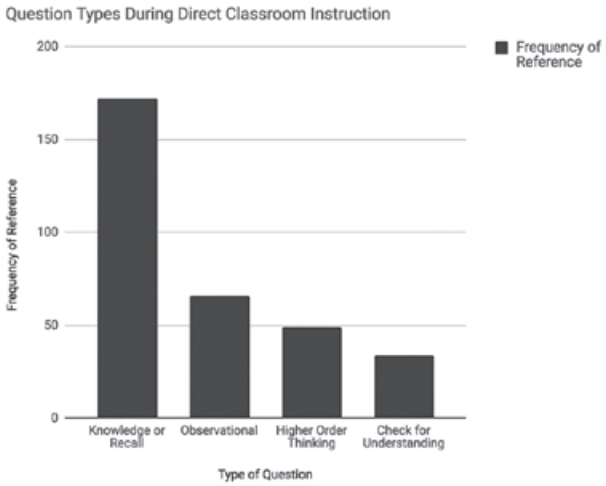

Figure 4. Frequency of Question Type Occurrence Across Observations

Race	
African or African-American	930
White	131
Asian	13
Native American	14
Other	8
Total	1096

Table 1. 2016-17 School Year Student Race

Lunch Status	
Free	908
Reduced	19
Paid	170
Total	1097

Table 2. 2016-17 School Year Student Lunch Status

Concept	Code	Description	Dimensions (as applicable)	Exclusions (as applicable)
Story Structure	Character–Instruction	Provide information or ask questions about characters. This would include who is in the story, descriptions of characters based on story events/actions. (Was Boland mean or nice? Who was in the story?)	Identification of one or more characters. Minimal reference to main character(s)	Excludes specific actions and emotions of story characters.
	Character–Emotions/Actions	Instruction or prompts that relate to a character's emotions, actions, or the relationship between emotions and actions throughout the text.	Basic Wh–questions Compare and contrast emotions at the beginning and end of the text Frequently use pictures for support and cues.	
	Recall – Story Events	Teacher identifies an event or asks child(ren) to identify one or more specific events in the book. Typically, this includes main events such as the climax and conclusion.	Basic Wh–questions Repeated prompts At times, accompanied by "Checks for Understanding" Frequently use pictures for support and cues	
	Recall – Setting	Teacher identifies setting or asks child(ren) to identify and/or describe the book's setting.	Visual cues with illustrations	

Table 3. Narrative Comprehension Codebook Sample

Authors' Bios:

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Am I a Math Kid? Developing a Growth Mindset in Mathematics Through Empathy

Jillian Green, M.A.
ELEMENTARY TEACHER AT THE MABIN SCHOOL, TORONTO, ONTARIO

Introduction

A student's relationship with math in school has the power to impact their academic and life choices. According to researchers Sutton & Krueger (2002) students who enjoy math tend to perform well in their courses and are more likely to enroll in advanced courses. In contrast, students who do not like math and tend to perform poorly in the subject are more likely to opt out of advanced courses in secondary school and miss out on career opportunities (Sutton & Krueger, 2002). What would school be like if everyone thought that they were a 'math kid'? How would the world be different if more people entered STEM professions? Each year I think deeply about these questions as I set up my Grade Two math curriculum. As a primary teacher I aim to lay a strong foundation for future schooling experiences, and feel a great responsibility to positively nurture children's attitudes towards learning and knowledge. I have been teaching seven and eight-year-old children for nearly ten years, and each school year I continue to observe students question their math capabilities and claim they are "bad at math." Why do students feel this way at such a young age? As a teacher-researcher I was compelled to seek out and implement best classroom practices that supported children's development of a positive math identity in my classroom. Inspired by new research about the brain's amazing ability to grow and change, and passionate about our school's mission to teach empathy, I opened my curriculum by setting math norms with the children and creating a math agreement. This very simple initiative had an enormous impact. Throughout the year I observed increased student achievement, joy, risk taking and problem solving like I had never seen before. This article shares that story and captures student reflections from both September and June.

Listening with Understanding and Empathy in the Math Classroom

I am a teacher at the Mabin School, a co-educational JK to Grade 6 progressive school in Toronto, Canada. Our sustaining principles are Inquiry, Integration and Reflection. We are Canada's first independent Ashoka Changemaker School and are recognized for developing the qualities of leadership, teamwork, problem-solving, and most of all, empathy in our students. Students are encouraged to think deeply about their community and how their actions affect people around them. The faculty collectively draws inspiration from Arthur L. Costa and Bena Kallick's *Habits of Mind* to support children at work and play (Costa & Kallik, 2000). Educators Costa and Kallick define and describe 16 types of intelligent behaviours that make up the *Habits of Mind*. Upon entry into Junior Kindergarten, children are taught their first *Habit of Mind*. They are taught the concept of "Listening with Understanding and Empathy," which is intended to permeate throughout their entire eight-year school experience. As children grow, more *Habits* are incorporated into their curriculum. Each classroom and specialty teacher creates an environment where children actively work and reflect upon these behaviours from entry to graduation. Along with our strong focus on social and emotional curriculum, the Mabin School is a newly appointed Laboratory School interested in research, experimentation and professional development. We strive to incorporate best practice and evidence-based teaching in all that we do. Teachers are encouraged to continuously reflect upon their own practice and seek out current research to solve pedagogical problems.

Every year I felt stuck and frustrated hearing my young students question their math abilities. I had always worked towards implementing a math curriculum that reflected current research about how children learn best. Drawing from the *Principles for School Mathematics* from the National Council of Teachers of Mathematics, my tasks were hands on, differentiated and allowed students to be creative, reflective and solve challenging problems (National Council of Teachers of Mathematics, 2000). I incorporated manipulatives, technology, and made assessment meaningful by connecting to everyday instruction in the form of reflection and portfolios. What was missing? Over the 2016-17 school year, the Min-

istry of Education in the province of Ontario engaged students, parents, educators, partners and community members to learn more about student well being and how it was being supported in schools (Ontario Ministry of Education, 2017). The findings revealed that a sense of wholistic well being, community and safety were desired in the learning environment, which did not exclude the sphere of mathematics:

> The importance of caring relationships, a sense of self/identity, a feeling of connectedness and belonging, and the importance of meaningful learning as well as attention to healthy bodies and minds and physical and emotional safety. They urged that all of this needs to be nurtured in students' day-to-day experiences in school, including in mathematics class (Ontario Ministry of Education, 2018, p. 4).

Moving forward I sought to enrich my math-learning environment by taking into account students' well being with a specific focus on how to learn best in a group.

Growth Mindset: Am I a Math Kid?

Implementing change in my classroom began in the summer before the students arrived. During August professional development sessions our staff reviewed current brain research and examined Jo Boaler's Week of Inspirational Math initiative (Boaler, 2017a). Boaler is a Standford professor of Mathematics Education, and the faculty director of *Youcubed*, which is a movement aimed at supporting teachers to bring about high levels of student engagement and achievement in mathematics. Through its website, *Youcubed* provides research-based teaching methods, tasks, videos and lessons to support teachers. The lessons are clustered together in weeks so that an important idea around learning math is covered each day. As a staff we agreed that the whole school would begin the year with Boaler's Week of Inspirational Math lessons. Our Grade Two class undertook Boaler's first lessons from the "Week One" installment which is titled "Honouring Ideas—Wanted: Everyone's." The goal of this lesson is to help students work well in a group by reflecting on things they like and do not like when working together on a math lesson.

To begin the lesson we sat on the carpet in a circle and I asked my class a simple question: "What don't you like about working on math in a group?" Throughout my years of teaching I have observed that when children have the opportunity to share what they DO NOT like about something, they are elated to share! The conversation was instantly rich and lively. Here are the ideas my students agreed upon:

We don't like:

- People speaking at the same time
- Interrupting
- When it's too loud
- When people say "you're not good at this"
- When people say "Oh! It's soooo easy!"
- People giving away the answer
- When people whisper in my ear when I try to listen
- When kids yell, "I'm Done!!!" because I'm still working
- Teasing if I make a mistake

An idea that students repeatedly referenced was that they did not want to be rushed. They spoke about the biggest math myth I attempt to battle - and lose - each year: if you are fast at math then you are very good at math. You are a 'math kid' and will always be good at math. The flip side of this way of thinking is that if you are not fast at math or if you cannot solve a problem quickly and easily then you are bad at math and math isn't your thing.

This harmful myth couldn't be further from the truth. I have fought to model and value thinking time and creative problem solving in my classroom each and every year yet, but students don't always buy it. The wave of research based on Carol Dweck's growth mindset has been a powerful tool for educators to explain and combat this damaging narrative (Dweck, 2006). Dr. Dweck first coined the terms fixed and growth mindset to explain the underlying beliefs people hold about learning and intelligence. Students who believe they can get smarter and that effort makes them stronger have a growth mindset. They put in extra time and effort because they believe they can do it, and that leads to greater success and achievement. Conversely, students who hold a fixed mindset believe they are born with limited abilities and qualities that cannot improve or change. They believe that talent alone, without any effort, is responsible for success. A person with a fixed mindset is likely to give up easily. Professor Boaler's research aims to revolutionize math education by drawing upon Dweck's findings, and shifting students' math mindsets from fixed to growth.

It was powerful listening to my young students unknowingly echo an idea that Boaler has written about

extensively. In order to encourage a growth mindset, math teachers must value depth over speed (Boaler, 2014). Many students believe that fast students are those who hold the most potential. This causes slow but deep thinkers to turn away from math.

> The best mathematical learning environments are those in which students are encouraged to appreciate the beauty and diversity of math, learning new ideas without pressure or anxiety. Many students turn away from math in their early years because they feel that their creativity and open thinking is closed down as they are forced to follow standard rules and procedures. Mathematics is a multi dimensional subject that should be introduced in the early years through a flexible, visual, and creative approach that values students' thinking (Boaler, 2014, p. 473).

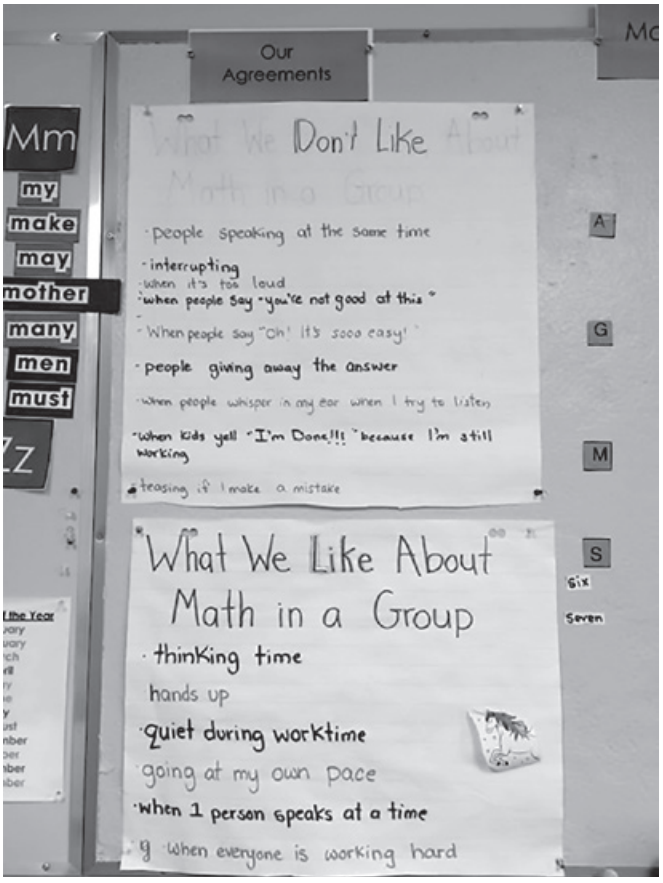
In our discussion, children were empowered to articulate behaviours their peers were displaying that negatively impacted their learning. Many students shared the same concerns, particularly around speed. What was especially interesting to me was that at our school we do not provide children with timed math tests at such a young age. Simply observing other students complete their daily work was enough for children to label and rank their abilities. I realized we needed to shift our communal behaviour.

Our Math Agreement

Sharing their worries, dislikes and anxieties was therapeutic and allowed us to begin reimagining how we would like to learn math together. We moved the discussion towards what we liked about learning math in a group:

- Thinking time
- Hands up
- Quiet during work time
- Going at my own pace
- When one person speaks at a time
- When everyone is working hard

I recorded all of the children's statements and placed them on the wall. We agreed that these would be our math norms and we would work hard to respect them. The norms were displayed and referenced throughout the year. I observed a shift in behaviour on math tasks and lessons that I hadn't seen in previous years. Quieter students began to feel more comfortable participating in lessons. Students had more patience for one another when collaborating on tasks. Mistakes were celebrated. Hard work, effort and struggle were valued. One young girl reflected about a partner experience in her portfolio, writing "I noticed he didn't get it right the first time and I wanted to tell the answer but I knew they would learn more if they figured it out for themselves so I said good job, try again." I no longer heard the loud chime of "I'm done!!!" during independent work periods.



Student Buy-In: Hypothesizing Why the Agreement Might Have Worked

1. *Learning in a Togetherness Environment*

The agreement involved the entire classroom community, and everyone was equally responsible to improve how we learned math in a group. New Zealand researchers Anthony and Walshaw (2009) reviewed current studies on characteristics of effective teaching in mathematics in Western education systems. They found that recent mathematic initiatives work to shift teaching and learning away from a traditional emphasis on learning

rules for manipulating symbols, and instead focus on developing communities of practice. They formulated a set of ten principles that highlight the type of pedagogical approaches found to develop mathematical capability and disposition. I found a connection between the success we experienced with our math agreement and the researchers' principle called "Ethic of Care" (Anthony & Walshaw, 2009). Through an "Ethic of Care," students desire to learn in a "togetherness" environment where everyone feels included and respected. Effective teachers must explicitly model supportive and empathetic behaviours in a math lesson, such as who might speak, when, in what form, and how listeners might act.

The positive attitude that develops raises students' comfort level, enlarges their knowledge base, and gives them greater confidence in their capacity to learn and make sense of mathematics. Confident in their own understandings, students will be more willing to consider new ideas presented by the teacher, to consider other students' ideas and assess the validity of other approaches, and to persevere in the face of mathematical challenge (Anthony & Walshaw, 2009, pg. 8).

2. *Children Value Rules They Construct for Themselves*

Anthony and Walshaw place the teacher as central to developing students' math identities through curating the learning environment. But what role do the students play? Constructivist researchers DeVries and Zan (2003) who follow educational theorist Jean Piaget, assert that when children care about a classroom problem and take part in solving it they are more likely to view the resulting rules as fair. Having made the rules children are more likely to observe them (DeVries & Zan, 2003). The researchers studied kindergarten children playing in the block centre who were concerned about problems that arose, and the process of them coming together to create rules to solve it. They found that participating in the process of rule making supported children's ability to self-regulate their own behaviour. DeVries and Van assert that when children write norms in their own words it may be more meaningful as children bring up scenarios that a teacher may not have considered (DeVries & Van, 2013). As a classroom teacher I can relate to this finding, as it was illuminating for me to listen to so many children speak about the discouraging phrase "I'm done!" I understood that devaluing speed was important to reduce anxiety and encourage deep thinking, yet, it was the children's specific language of "We don't like it when kids yell out *'I'm done'*," which held more meaning to their daily experiences.

3. *Continuous Positive Messages About Math Throughout the School Year*

To support our agreement we continued with *youcube's* Week of Inspirational Math on both the first week of school and the first week returning back from winter break (Boaler, 2017a). Consistent positive math messaging was given throughout the year through videos, lessons, frequent portfolio reflections and impromptu conversations. For example, we often referenced a character named Hippocampus, a small Hippo superhero featured in a *youcube* video who encouraged students to use their fingers to count and think visually! When teaching I often referenced Boaler's seven recommended messages for students to foster a positive attitude towards math in the classroom (Boaler, 2017b):

1. "There is no such thing as a math person" (Boaler, 2017b). Research supports that anyone can be a math person due to the plasticity of the brain. With hard work and believing in yourself (having a growth mindset) everyone can reach the highest levels of math they want to.

2. Mistakes are valuable. When mistakes are made synapses are fired and our brains grow. Furthermore, when a mistake is made and you learn from your mistake even more synapses fire!

3. Questions are valuable and asking questions is correlated to higher achievement.

4. Math is a creative subject and about making sense. The belief that math is about a set of formulas to be memorized is associated with low achievement. Math is about visualizing patterns and creating solutions that everyone can see, share and critique. Problems can be solved in many different ways.

5. Math is a form of communication and students should represent math in as many different ways as they can (not just numbers!) such as words, pictures, graphs, doodles, equations and colours.

6. Thinking slowly and deeply is more important than going fast. When you are going fast or are timed you can become stressed, which can block your working memory and familiar facts cannot be recalled, making students even more anxious and discouraged. The process of learning and understanding is more important than fast facts.

7. Math is about learning, not performing. It takes time and persistence to solve problems. It is okay if you do not have the answer right away - keep working, don't give up!

When I reflect back on my own schooling I cannot even fathom how different my educational experience would have been if these messages had been central to my learning of math. I am inspired and hopeful for the possibilities that exist if students begin receiving these messages as early as kindergarten, and consistently throughout their education.

Spring Reflections

Soon the norms began to trickle into all subjects. For example, students began asking for "thinking time" when sharing ideas in reading or writing lessons. I overheard comments such as, "Please don't tell me the answer, I know I can do it myself." Or "When you say it's easy it makes me anxious because it's not easy for me, but I want to work at it." I had often modeled these ideas in the past but had never heard them uttered directly from my young students' mouths. I was simply in awe! If students were able to advocate for themselves to take time solving problems, thinking deeply, and working hard in the second grade, imagine what middle school and high school math and beyond would feel like? At the very end of the year we reflected upon our math agreement and discussed which norm was the most helpful:

> "It used to be really loud and now people are remembering to be quiet so kids can focus more."—Izzy
>
> "Putting up your hand because if someone is chit chatting and it's also one person talking then it's going to distract them so they won't know what to do."—Lincoln
>
> "I like when people raised their hand when they want to tell you when they're done instead of screaming done!!! Because I'm like how am I not done and makes me wonder why I'm not done and it makes me feel kind of embarrassed that I'm not done when I shouldn't be."—Liam
>
> "I like when people don't yell out I'm done because it makes me really stressed and sometimes when people yell it out I think aww I really want to be done too."—Sacha
>
> "I remember this time before we made the norms last year and someone called out when we were doing a math lesson and at the end of the math lesson I had no idea what we were supposed to be doing so the one person talking at a time one is important."—Camden
>
> "I like not teasing when you make a mistake because when I make a mistake and someone says that's totally wrong and you're a dummy it makes me feel really bad. Instead when you make a mistake nothing happens in our classroom room. When I see that someone else makes a mistake I might say "I think you got that wrong can I help you with that?"—Pau
>
> "If someone says I can't believe you didn't get that question it's so easy—well some kids don't really know a lot of questions—so I like that there's a rule where no one is allowed to say that it's soooooo easy."—Liv
>
> "I like thinking time because when you ask a question everyone is looking at you and it can be really embarrassing so when there's more time I feel more part of the class."—Sloan

A Sample Lesson: Teaching and Learning According to the Agreement

What does a lesson that reflects our math agreement actually look like, sound like and feel like? I will share a sample lesson that is taught in accordance with our classroom norms, and upholds Boaler's seven positive messages listed above (Boaler, 2017b). This lesson is entitled "Find the Magic (Pentomino) Keys," derived from *Taking Shape: Activities to Development Geometric and Spatial Thinking* (Moss, Bruce, Caswell, Flynn & Hawes, 2016). The goal of the lesson is to teach the concept of congruency, spatial relationships and movement such as transformations, flips, slides and turns. As I go through my interpretation of the lesson I will reference moments where I either explicitly or subtly draw upon our agreement.

Part One: Read Aloud and Introducing the Magic Keys

The lesson begins by gathering the children in a circle to read aloud from Robert Munsch's *The Paper Bag Princess.* In the story a dragon captures a prince and

the princess tries to convince the dragon to release him. Partway through the story, I inserted a new page into the storybook and changed the plot line. In the new story the dragon tells the princess that in order to rescue the prince she must open his twelve locked doors by creating twelve different magic keys. The dragon explains that the children's mission is to create all twelve keys out of math manipulatives. I then introduced the new math materials we would be working with -- special shapes called "pentominoes" that are made of 5 square tiles. We discussed the two rules for building a magic key: it must be made of 5 square tiles and every square must share at least one of its sides with another square. The teacher-led introduction was complete and it was time for students to experiment making a magic key all together on the carpet. Before we began I asked if a few volunteers could take turns reading our norms out loud. This lesson occurred early in the school year and I found rereading our agreement before group discussions helpful to hold us accountable and set the tone for a positive learning experience.

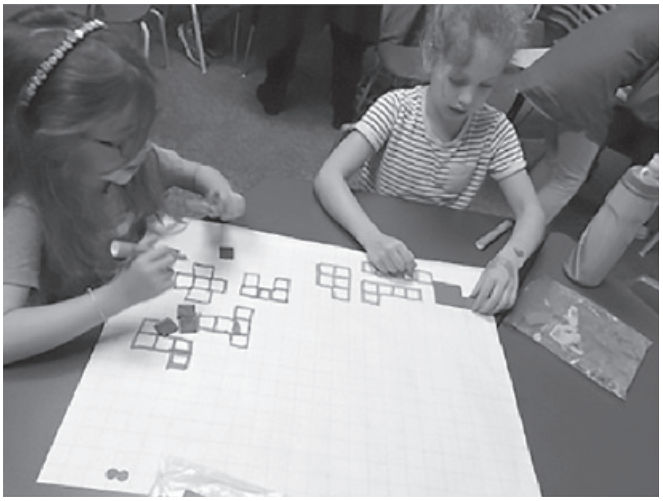
I first modelled a few magic keys that were "non-examples," meaning their construction did not follow the rules as they were made with too many or too few squares or they were not touching sides properly with another square. Children quietly observed my construction and then I asked for volunteers to debate if the keys were valid. I made sure to provide apt thinking time and patiently waited for many hands to go up before choosing a participant. I also ensured that there were many turns and a variety of voices heard. Next, I asked if a volunteer could come to the middle of the carpet and try to create a magic key as an example. When I noticed positive learning behaviour that reflected our norms I would casually comment, "everyone is working so hard to raise hands and speak one at a time," specifically referencing language from our agreement. Additionally, I would explicitly model behaviour from our agreement while teaching. For example I would say, "I am going to wait and give thinking time and allow more kids to raise hands before I ask our next volunteer to come up." While the students took turns experimenting with the square tiles in front of their peers, I asked children to verbalize their strategies, and made reference to the many different creative ways one could solve this problem. I emphasized the value of the problem solving process over reaching a quick answer. It is important for me to note that when praise was given I deliberately attempted to respect a growth mindset philosophy and Dweck's research imploring adults to comment on children's effort, struggle and learning potential rather than their final product, intelligence or in this case, compliance of class rules (Dweck, 1999).

Part Two: Exploring Congruency

Once the student-created key was complete the children discussed if it satisfied the two construction rules. I pulled out a solid pentomino from a bag in my lap that was the same as the student's creation. I then introduced the term "congruent" to the class and placed the shapes side by side in the same orientation. I distributed a bag of 30 square tiles of the same colour to each student and asked children to construct a magic key that was different from the example in the middle of our circle. I gave children time to work on this problem while we remained in the full group circle structure. After 5-10 minutes of work time we went through the same process mentioned above, asking a volunteer to share their key and provide proof that it satisfied both rules. The class agreed that this was a new key and now there were two valid magic keys in the middle of the circle. Next, I told the class that I was going to create one more key. I took out five tiles to create a key, which was actually the same shape as a previously constructed key, only placed in a different orientation. I claimed that I had found a new key and I opened up the circle for discussion, anticipating students to disagree and reference congruency. Prompts may be needed here, such as holding up the previous shape, or directly asking "What can you do to my key to prove that it is congruent to another key that has is already been made?" Concepts such as flip, turn and slide can be introduced here as children experiment with the tiles. The class listened carefully to children expressing different theories on why the key was the same or different. This was an important moment in the lesson to model listening to others' ideas, how to respectfully disagree with one another and present mathematical arguments that require proof.

Part Three: Group Work and Exploring Pentominoes

We established that we now had two valid magic keys and that we needed to find ten more to release the prince. Children worked in pairs with a bag of same-coloured tiles and had access to large graph paper and markers to trace and document their completed keys. This lesson is an excellent example of a "low floor/high ceiling" task, which is sometimes referred to as "low threshold/high ceiling," or "low floor/no ceiling." These math activities are equitable task that all students can engage in by finding many different entry points. The task is often



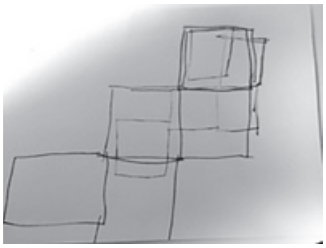
visual, allows students to work at their own desired pace, and leads to rich discussion and learning (McClure, Woodham, &Borthwick, 2011). In this lesson some students may work to solve one key, some may solve all twelve, and others may go on to discover which pentomino keys can be folded into cubes. The task is limitless, and therefore very engaging for all students.

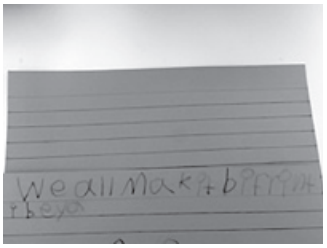
As students set off to leave the circle we referenced our agreement one last time, and I asked how they thought they should act when they discovered a key. They acknowledged that although they would be excited, we had agreed that we did not like when classmates yelled out "I'm done," so they would refrain from this behaviour, and avoid placing any timed pressure on other groups. Students were given about twenty minutes with teacher check-ins to creatively play with the materials and build keys. In *Taking Shape*, the authors suggest that the children may remain in the circle working in partners to construct their keys (perhaps to draw inspiration from one another). When we created our agreement I learned that many students wanted quiet work time, so I provided children with the option of remaining on the carpet or spreading out to a quieter corner of the room. While the children were working on solving the 10 remaining keys, I circled the room and observed how students were arranging their tiles. I listened carefully for spatial and geometrical language and any misconceptions around the concept of congruence. As children created the keys I provided pairs of students with solid pentominoes to place on top of each of their 5-square tile pentominoes.

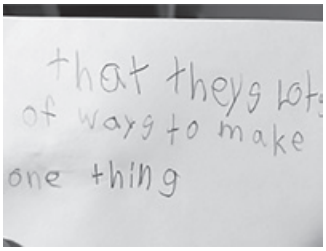
Part Four: Student discussion and Reflection

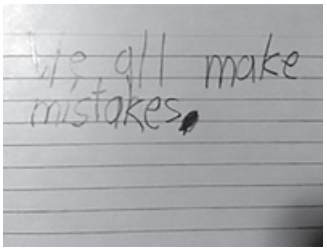
At around the twenty-minute mark students received a gentle message that we would be gathering back to the circle at the sound of a chime, and would be asked to bring their work and sit beside their partners. It was important that students did not feel rushed or timed on this task, and felt proud of the hard work put into the keys they had solved, even if they had only solved one. At the sound of the chime students returned to the circle, and each pair contributed one new key to the class collection in the middle of the carpet.

Things then got exciting as children began making mistakes! A few pairs unknowingly offered keys that were congruent with other keys, but were oriented in different directions. A respectful debate ensued and students worked to defend their keys. It was inspiring to observe children discovering their own mistakes and arriving at a deep understanding as a result. I encouraged the use of hand gestures and manipulatives in our discussion. I also made reference to Boalers' (2017b) message about the value of mistakes, firing synapses and our growing brains! Children continued sharing their keys until we discovered all 12. A loud cheer was heard in the room









and we released the prince and finished Munsch's story! We happened to solve all 12 keys; however, I appreciated that the authors of *Taking Shape* emphasize that you can let the children know there are 12 possible answers and while they can continue to look for them they may not discover all 12 at this time (Moss et al., 2016). This wonderfully echoes Boaler's message that math is about learning, not performing, and takes time and persistence to solve problems (Boaler, 2017b).

At the end of the lesson, students reflected upon their learning on small cue cards.

Conclusion

Our math agreement was the missing link and a vital entry point in supporting children's growth mindset. Young students were empowered to advocate for their own learning needs. Using empathy, children let go of behaviours that unintentionally made their friends feel anxious, distracted or not good enough. I as a lone teacher wasn't enough to lead this shift. Only through a community agreement, which was continually reflected upon throughout the year, could we create a safe space to take risks, slow down and find joy and value in mistakes.

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Let's be Mindful With Young Children!

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"Mommy, mommy, slow down, please breathe in and breathe out," said Lailah to her mother who was driving in a rush. Zoey, a four year old, commented to her teacher, "Mindfulness makes me focus. I am calm and treat my classmate nice. When I'm mad, I breath in and out." Another four year old told her teacher, " Mindfulness helps me to feel better, and it helps me to be nice to my friends."

These are a few comments made by children who have been engaging in mindfulness activities in classrooms. The concept of mindfulness is becoming one of the helpful ways that children and teachers can focus on and control their behavior (Buchanan, 2017; Oaklander, 2017; Rain, 2016). It is defined as the awareness that emerges through purposefully paying attention, being in the present moment, and being nonjudgmental to the unfolding of experiences moment by moment (Kabat-Zinn, 2003).

With societal changes involving busy and distracted adult schedules (James, 2017), the lack of safe outdoor play spaces, increasing academic pressure, and a technology-driven culture (Rain, 2016), today's children face many challenges and difficulties in dealing with stressful daily lives. There are various ways to help children cope with such changes, and one way to calm them down and sharpen their mental functions is through the use of mindfulness activities (Buchanan, 2017; Flook, Smalley, Kitil, Galla, Kaiser-Greenland, Locke, Ishijima, & Kasari, 2010; Kabat-Zinn, 2003; Oaklander, 2017; Zelazo & Lyons, 2011).

This paper describes how teachers can support young children's development of coping skills by engaging children in mindfulness activities, presents the importance of mindfulness, and includes some helpful activities that children and teachers can try in the classroom. This paper will also suggest the role of the teacher in promoting children's mindfulness.

Importance of Mindfulness

Sometimes children are overwhelmed with hurried adult schedules, daily stressors, and busy school lives. Under such stressful environments, children experience strong feelings that might be difficult to control, and they often seek teachers' support in developing emotional regulation (Tanyel, 2009). Teachers can implement mindfulness activities to enhance children's skills in dealing with their stressful daily lives. Mindfulness can be applied to any activities of one's body, to one's feelings or sensations, to one's various states of mind, and to one's other mental concepts (Austin, 2000).

Mindfulness activities have helped anxious children to change their behavior (Semple, Reid, & Miller, 2005; Singh, Singh, Lacioni, Singh, Winton, & Adkins, 2010). For teachers and others involved in children's lives, mindfulness can be applied to their awareness of children's needs (McMullen & Dixon, 2006). Teachers need to be present in the moment with children when caring for them by being respectful and patient. In this regard, teachers need to be mindful before working with and caring for children, while caring for them, and after caring for them. This is related to reflecting on their teaching practices (McMullen & Dixon, 2006).

Mindfulness activities can also support children's development of kindness and empathy through reflection (Flook et at al., 2010; Kabat-Zinn, 2003; Oalkander, 2017; Rain, 2016; Zelazo & Lyons, 2011; Wallace, 2001;

Vermeer, 2012). One study has found that elementary school children's cognitive skills and social and emotional competence improved when they were given a social and emotional training program involving mindfulness and caring for others (Schonert-Reichl, Oberle, Lawlor, Abbott, Thomson, Oberlander & Diamond, 2015).

When a mindfulness program is implemented in classrooms, students are more likely to use creativity and experience cognitive flexibility because they feel more in control of their learning and development (Napoli, Krech, & Holley, 2005). Including such programs as part of school curricula can support children's abilities to effectively deal with everyday school life. It has been shown that mindfulness education programs improved the social and emotional competence of fourth through seventh graders (Schonert-Reichl & Lawlor, 2010). Also, Wall's study (2005) regarding 11 to 13 year olds with behavioral issues has found that when a mindfulness-based stress reduction intervention program was implemented in classrooms, these students enhanced their feelings of calmness, relaxation, as well as improving their sleep.

Helpful Mindfulness Activities

Mindfulness activities can start with articulating language (Sofer, 2017). Teachers might explain to children what it means to be mindful by saying, "We are going to pay attention to what we are about to do." At one preschool, teachers incorporate mindfulness language throughout the day. They say to children, "Let's mindfully go to recess," "Let's mindfully prepare for lunch," or "Let's mindfully push our chairs up to the table." The teacher might say to children "When you are mindful, you pay attention to what you are doing. Paying attention means that you are thinking of what you are doing and what you are doing with your friends in the classroom." Teachers play an important role in implementing these activities. All of the activities described here are implemented in classrooms, and children's comments are also included.

Breathing: The most popular activity is about focusing on one's awareness of an inner experience, breathing (Austin, 2000; Flook eta., 2010; James, 2017; Young, 2013; Zelazo & Lyons, 2011; Weil, 1997). Children lie on their backs as they listen to a bell and raise their hands when they no longer hear it. Then, teachers place stuffed animals on their abdomens to help them pay attention to their breathing (Zelazo & Lyons, 2011). Teachers encourage children to pay attention to their breathing and to look at the stuffed animals rising and falling on their abdomens. Teachers may reassure children that it is okay if their minds wander, and then they can return their attention to the stuffed animals and notice their breathing (Buchanan, 2017; Flook et al., 2010; Young, 2013). Teachers might want to say to children "The moment you notice you're distracted, that's a moment of mindful awareness" (Flook et al., 2010, p. 89). Children also can use pinwheels to focus on their breathing (Flook et al., 2010; Goldring, 2013). When using pinwheels, children can stand or sit, with good posture. They focus on pinwheels, and the teacher asks the children to breathe all the air out thorough their mouths so the pinwheel will start turning. The teacher might say, "Inhale by taking a long, slow, smooth deep breath through your nose all the way down to your tummy" (Goldring, 2013, p. 50). These activities may last no more than five minutes (Liao, 2017). One preschooler commented about this activity by saying, " I feel calm and good when breathing like this, and stuff."

Greetings: This interactive mindfulness activity involves where children and teachers "take turns making eye contract and greeting each other" (Flook et al., 2010, p. 87). Children and a teacher sit in a circle, crossing their legs on the floor, and the teacher says hello to the children sitting at his/her right. When greeting them, the teacher makes eye contact, calling the students by name. The teacher could say, "Good morning, Deshante, your eyes look brown to me today." Then, the student sitting next to the teacher might say, "Good morning Mr. Smith, your eyes look blue to me today." This greeting activity is done until every child has a turn. The type of greeting is objective to observe since it is based on observations, rather than analysis. According to Flook and others (2010), this type of statement helps everyone to "avoid disagreement among students with respect to eye color" (p. 88). When kindergartners engaged in this activity, and their teacher asked them about their thoughts, their comments included: "I didn't know my friends' eye color; I guess I never pay attention to it" and "I think I like this greeting because we can say nice things to each other."

Five senses: During lunchtime, ask children to observe the food that they are eating by asking them questions, such as, "Can you pay attention to what you are chewing, tasting, and swallowing? What do you hear when you are chewing?" As mindfulness is related to one's awareness and mental posture at the present moment (Austin, 2000; Flook at al., 2010), teachers can ask questions that might help children notice sensations and emotions regarding eating. Also, using the senses can be helpful in promoting children's mindfulness (Rain, 2016) by

reminding children of what they smell, what they see, what they feel, what they taste, and what they hear. Not just during lunch time, but throughout the day, teachers can ask questions that enhance children's senses and their keen observational skills. At one preschool, when it rains, teachers open the window for students to see, listen to, and smell the rain. Also, at this school, when the teacher asked the children what they feel, what they taste, and what they smell while eating raisins, their comments were: "In my mouth the raisin was soft and chewy," "It tastes sweet," and I can smell it in my mouth."

Sand boxes: At another preschool, children practice writing their names or creating a design in a box of colored sand using a chopstick as their tool. Teachers can create a quiet place where children can engage in this activity and can take photos in order for children to see and reflect on the activity. When engaging in this activity at one preschool, the teacher asked her students how they feel, and the children commented, "We are quiet while we do mindfulness" and " That's because we are focused."

A tall tree: When engaging in this activity, the teacher asks children to stand and get comfortable in their spaces. The teacher says, "I would like for you to think about a big tall tree. Now, think, you are a seed of that tree" (Napoli, Krech, & Holley, 2005). The teacher asks children to curl up like a small seed by saying, "Please breathe deeply as you curl up and think about yourself as a seed in the ground. Think in your mind about what is going on with you as a seed when someone is watering you." The teacher encourages children to think about what happens when they unfold as a seed and become a full tall tree. The teacher might say, "Now, you become a tree. Can you quietly stand tall and become a tree?" The teacher might ask how they felt when they were seeds and how they felt after they became trees. At one kindergarten, the teacher asked her students how they felt while playing this activity, and the children replied, "I feel like a big tree," "I am going to look at a big tree and think about it," and "I am going to pay attention to trees now. I might see monkeys!"

The Role of the Teacher

The teacher plays an important role in implementing mindfulness activities and can model being mindful through reflection. They can also remind their charges of what it means to be mindful by acknowledging children's needs.

Model mindfulness behavior: Before teachers present mindfulness activities to their students, they are encouraged to try and evaluate them (Kabat-Zinn, 2003). Teachers ought first be a role model (Bernsilver, 2016; Kabat-Zinn, 2003; Richhart & Perkins, 2000; Roeser, Skinner, Beers, & Jennings, 2012). Practicing mindfulness first as the teacher is one of the steps in transitioning students to act, to behave and to think mindfully (Kabat-Zinn, 2003). A teacher's image and demeanor may represent mindfulness; thus, teachers need to view mindfulness as they implement other contributing factors that impact their students' holistic development. Teachers can revitalize their classrooms to create a 'mindfulness zone' and implement mindfulness activities that support student/teacher relationships and peer-to-peer relationships (Flook et al., 2010). Additionally, teachers who practice mindfulness are able to make positive changes both in and out of their classrooms (Adams, 2002; Napoli, 2004).

Reflect on teaching: Teachers can cultivate their own moment-to-moment awareness of their students, classrooms, daily schedules, and interactions with their students when they reflect on their teaching environments (Buchanan, 2017; Richhart & Perkins, 2000) and notice some issues that they, as teachers, appreciate (James, 2017). They can write about at least five items that they appreciate, and this exercise helps teachers to simply be grateful and appreciate seemingly insignificant issues in their lives (James, 2017). When teachers appreciate and become aware of their students' needs and interests, they can provide the best mindful activities to promote children's awareness, reflection, and thinking. By knowing that students may respond differently to various kinds of mindfulness activities, teachers might conduct thorough research on these activities and educate parents on the implementation of mindfulness and its benefits on children's holistic development.

Remind students of the importance of mindfulness: Spend time with individual children to remind them of how to be mindful. Personal attention helps children to remember the importance of this. Teachers might want to say, "Remember, we need to be mindful. Let's take a big breath in and out. How do you feel now?" By reminding young children to regain emotional stability, teachers can support their regulation skills.

Acknowledge young children's needs: Show support and understanding to help children cope with everyday stressors. When teachers show empathy and caring to children in order to develop their mindfulness skills, children can enhance their self-calming strategies. Inform students that becoming mindful takes time and practice.

Conclusions

The power of mindfulness is endless if children and teachers practice it together every day. It enhances our appreciation of people and environments (Buchanan, 2017). Becoming aware of the moment allows us to live fully in our bodies (Kabat-Zinn, 1994). When we focus on the present, we are able to engage with others and to make "a more authentic connection, with more reflection and consideration" (Siegel, 2007, p. 15). Let's be mindful with young children!

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Thoughts on Developing the Positive Professional Disposition of Middle Level Pre-service Teachers: Experiences and Reflections that Guide Professional Behavior via Laboratory School Role Models

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In 2005, my colleague, Kent Chrisman, and I wrote an article for the *IALS Journal* titled "Analyzing Classroom Observation Assignments" (Chrisman & Slattery, 2005), where we described techniques for considering purpose and usefulness of course assignments to observe classroom practices. In that article, we discussed the purposefulness of observation assignments and shared approaches to investigate usefulness of those assignments. We sought to dispel the thought that teacher education candidates were there "just to look". Over the last decade, our discussion and analysis regarding observation assignments have become increasingly more valuable in purpose and focus, and we have further refined our purpose and usefulness of course assignments as we suggested to do in that article.

I reflect here, though, on the experiences of simply watching, and ultimately, assert that we can develop ourselves professionally by sometimes merely looking. I ponder on the result of the positive professional behaviors that ultimately develop when master teachers become role models for pre-service teachers. Role models, through a mindful determination to demonstrate the utmost ethical standards, offer an array of useful behaviors from which the pre-service teacher develops one's own positive professional disposition. The experiences and subsequent reflections of those experiences are used to guide the professional behavior of the developing teacher, moreover, expectantly linking it then to sound instructional delivery.

From that first realization that creating a nurturing learning environment can serve as a positive factor for all students reaching full potential, middle-level pre-service teachers, notably, are expected to understand their complex roles as teachers of young adolescents. They are required to engage in practices and behaviors that develop their competence as middle-level professionals. Middle-level pre-service teachers must be informed advocates for young adolescents, working successfully with the educational community at large, and likewise, demonstrate positive professional dispositions.

The best teachers we know are passionate about teaching, and they know *why* they are passionate. That is, they can articulate a vision for what they are trying to do with content and pedagogy, and what instructional impact they want to have on their students. Undergraduate experiences and reflections are designed to help pre-service teachers define and refine their own vision as a teacher. As they acquire new learning, continue reading professional sources, complete course assignments, and most notably, through focused and purposeful observations of the best practices of master teachers in a laboratory school setting, they also develop a professional disposition which guides their professional behavior and ultimately links it to what will be become sound instruction. One middle-level student, after recently observing the instruction of comprehension strategy use in our fifth-grade classroom, wrote, "I have found the teaching style to have both aspects of traditional and facilitating behaviors. She often facilitates learning by asking questions that force her students to think critically about the content, enhancing their problem-solving capabilities and understanding the author's message. I watched her mix in over-exaggeration to decrease apprehension in the classroom while giving positive feedback. What I noticed is that she continuously challenges her students to do their best work, actively participate in the lesson, have work done on time, and genuinely value themselves as learners." What we subsequently discussed in class based on that exact reflection was that this student, although engaged in a purposeful observation on instructional delivery styles of traditional vs. facilitating behaviors as it relates to comprehension strategy use, she ultimately made conclusions about that teacher's positive professional disposition in building up and valuing her students as learners.

Laboratory school classroom observations expose middle-level pre-service teachers to a multitude of factors. Through focused and purposeful observations of

these master teachers, middle-level pre-service teachers can reflect on many instructionally-related things – the delivery style, vocabulary instruction, how to teach comprehension strategy use, the enthusiasm for writing in maintaining a writerly classroom environment, how to incorporate technology-based activities within the instruction, and specifically identify the physical atmosphere of the middle level classroom in terms of varying genre opportunities. What master teachers ALSO do is gush with experience that has cultivated professional behaviors and a professional disposition. They have been where middle-level pre-service teachers are going. They have been through what middle-level pre-service teachers are going through now and they are in a sound professional position to impart lessons about content and pedagogy, as well as professional behavior. Middle-level pre-service teachers have the opportunity to develop a positive professional disposition that is guided by the behavior of our laboratory school role models, and for that I am truly grateful.

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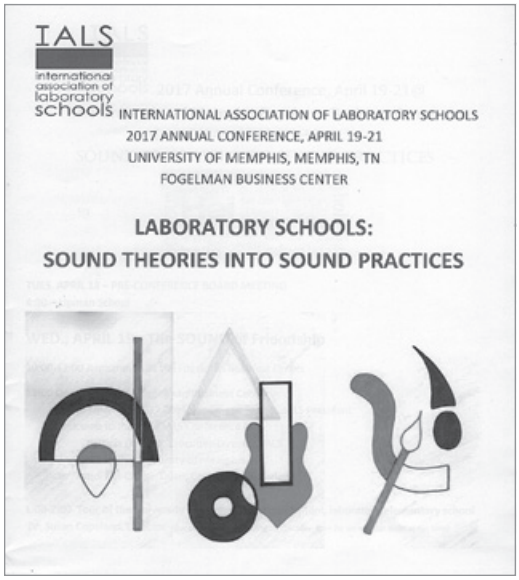
Dr. Cheryl A. Slattery, Associate Professor of Teacher Education/Literacy, Shippensburg University of Pennsylvania, has been teaching in higher education for fifteen years, and previously taught for fifteen years in the Pennsylvania public school system as a sixth-grade teacher, Instructional Support teacher, Reading Recovery teacher, and Reading Specialist. She has also worked as a Children and Youth Caseworker, servicing the individual needs of school-aged children and youth requiring out-of-home placement, and their families. Dr. Slattery's university coursework in PreK-4 and Middle Level includes English language learners, reading measures and intervention, content area reading, and advanced diagnosis in reading. Her research interests include home-school-community partnerships and family literacy, best practices in the classroom, the struggling reader and school readiness, the school to prison pipeline, and social justice through social media. During her tenure, she has worked collaboratively with undergraduate pre-service teachers, graduate in-service teachers, local school districts, and the Grace B. Luhrs University Elementary School on the campus of Shippensburg University, to impart best practices in the area of literacy instruction and intervention.

"Laboratory Schools: Sound Theories into Sound Practices," Highlights from the IALS Annual Conference in Memphis, Tennessee, 2017

Sandra Brown Turner
IALS BOARD MEMBER AND 2017 CONFERENCE DIRECTOR

It is with pleasure that I share these highlights from the 2017 annual IALS conference in Memphis, Tennessee. The theme "Laboratory Schools: Sound Theories into Sound Practices" served as a metaphor for Memphis, the home of the Blues and Rock and Roll. Deeper examination of the theme, however, lends itself to the ways in which our best practices in teaching and learning stem from the laboratory and university-affiliated school's research, professional development, and the ability of each to design and implement innovative educational ideas for our laboratory school students.



The conference opened with a keynote from a laboratory school parent, Marvin Stockwell, who was himself a laboratory school student. This speech proved to set the tone for the conference itself. He shared his memorable experiences as a laboratory school learner, and he expressed his deep joy at watching his own three children develop meaningful life skills because of the laboratory school teachers and rich learning environment.

Members of the International Association of Laboratory Schools were hosted by Dr. Hsiang Kung, who held a reception at the University of Memphis Confucius Institute and shared insight into his own vision to have Chinese culture taught to children.

We additionally toured three laboratory schools: at the University of Memphis we toured the Barbara K. Lipman Early Childhood School & Research Institute, the Campus School, and the Shelby County Schools Maxine Smith STEAM Middle School. Each school showed us their synergy and approaches to research-based learning, and we were honored to be invited to share in the meaningful work of these schools.

In following sessions, Dr. Shirley Raines, President Emeritus of the University of Memphis, delivered a mindful and inspirational keynote on the mission to move the Dewey model lab school of the late 1800's forward by refocusing our vision as laboratory schools on the 21st century. Workshop sessions were varied in topic and included presenters from fifteen different colleges and universities, including international contributors from Germany and the Czech Republic. In addition,we were awed by a laboratory school fourth-grader, Saanvi Kumar, who shared writing from her own 356-page book, *The Power of Cats*. She attended the conference to autograph copies of her book and speak with interested participants.

Of course, Memphis is known as the "City of Hospitality." We are especially known for the '3 Bs'—our delicious Bar-B-Q, our Blues music and our love of Basketball. Conference participants were treated to a ride on a paddlewheel riverboat on the Mississippi river and a Bar-B-Q dinner with a live Rhythm and Blues band.

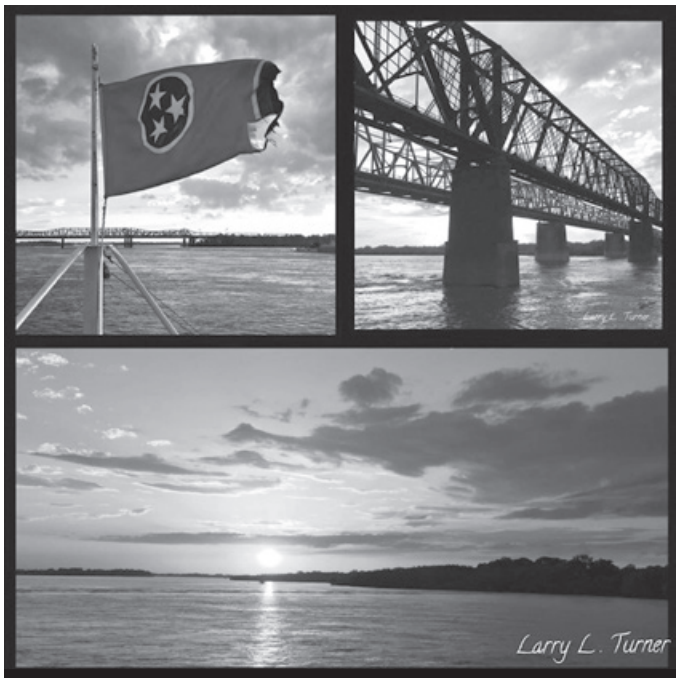
To close, we were challenged by speaker Dr. Kandi Hill-Clarke, Dean of the College of Education at the University of Memphis, to persist in the solid, good work we do each day. Participants were further moved to reflect on issues of equality and social justice with the poignant performance by Dr. Lawrence Blackwell of "Dr. King's Big Words for Everyone." His merging of several of Dr. King's riveting speeches deeply inspired us all to make "…a more just society."

All attendees expressed sincere appreciation for our experiences as laboratory school association members, collectively gathered to support our united laboratory school mission and visions.

Respectfully submitted,
Dr. Sandra Brown Turner, Conference Organizer, 2017

▲ *An amazing sunset over the Mississippi River.*

▲ *From left to right: Sandra Brown Turner, IALS Board member and conference organizer, Dr. Shirley Raines, President Emeritus, University of Memphis and keynote speaker, Dr. Kandi Hill-Clarke, Dean, College of Education, University of Memphis.*



▲ *Conference participants were treated to a Bar-B-Q dinner cruise on a paddlewheel riverboat on the Mighty Mississippi River.*

▲ *IALS President Jill Sarada and President-elect Amani Reed, hold the annual business meeting.*

▲ *IALS Executive Director, Patricia Diebold, presents keynote speaker, Dr. Kandi Hill-Clarke, Dean, University Of Memphis College of Education, with a crystal star to thank her.*

INFORMATION FOR CONTRIBUTORS

Call for Papers—IALS Journal 2019

Information for Contributors

The *IALS Journal*, a refereed journal, publishes articles that contribute to the knowledge and understanding of laboratory and university affiliated schools and other significant educational issues. Most articles focus on research, innovation, or opinion. The subjects most often addressed are teaching techniques; administrative concerns; functions, history, and the future of laboratory schools; innovations in curriculum and program; teacher education; student growth and development; and philosophical topics. Rebuttals, responses, and book reviews are also considered for publication. We also welcome articles outlining innovative teaching practices in laboratory schools and columns celebrating exceptional laboratory schools or laboratory school educators. Unsolicited manuscripts are additionally encouraged for consideration, though preference is given to articles that link explicitly to laboratory schools.

Submission Requirements

Length

The maximum acceptance length is twenty-five pages, including all references and supplemental material.

Format

The *IALS Journal* uses the 6th edition of the American Psychological Association (APA) *Publications Manual*, for style format. It is vital that all manuscripts submitted for publication conform precisely to this APA style.

Submission

Send your submission electronically to the editors of the journal: Dr. Christopher Keyes cskeyes@ship.edu **and** Dr. Shannon Mortimore-Smith srmortimore@ship.edu. The electronic copy should be written in a Google doc. Submissions should also include author's titles and affiliations and a 2-5 sentence author biography. For consideration in the 2019 volume of the journal, please submit by **Oct. 1, 2018**.

Editing

The *IALS Journal* reserves the right to make editorial changes in all manuscripts to improve clarity, to conform to style, to correct grammar, and to meet space requirements. All submitted articles are reviewed by the Editors to determine acceptability for publication in the *IALS Journal*. During the revision phase, authors should include information concerning their title, position, laboratory school, university name, location, etc. A brief author biography and school overview will be included at the conclusion of each article.

For further information: Questions can be directed to the editors. The editors welcome suggestions from IALS members concerning ways in which the *IALS Journal* may be improved.