International Association of Laboratory Schools
Mini-Grant Research Proposal
Application Cover Sheet

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Project Title: "We Learn Through Making": Re-Introducing Woodworking into a K-8 Progressive Laboratory School Setting

Project Summary: The goal of this project is to re-introduce woodworking into the Falk School K-8 curriculum. The investigators plan to create three mini woodworking studio spaces, one for each level - Primary (K-2), Intermediate (3-5), and Middle School (6-8) - and develop a woodworking program integrated into our K-8 curriculum. They intend to collaborate and work alongside their colleagues at Falk School, supporting them in learning how to integrate creative woodworking into the curriculum. They will provide professional development for the K-8 teachers, emphasizing developmentally appropriate woodworking practices, including a focus on the arts and technology. Parents and the university community will be invited to participate in this endeavor. Their experience, lessons, and insights will then be shared with teachers in school and community organizations through conference presentations, workshops, and papers.

Projected Budget Expenses:
Total Request = $2000

$450 One woodworking workbench with extra vice for the Primary floor. (from Community Playthings)

$1550 Two ($775 each) woodworking workbenches, one for the Intermediate floor, one for the Middle School floor. (from Rockler Woodworking Supplies)

External Funding Options: Falk Lab School will purchase all of the woodworking tools for the three mini studios and cover the yearly cost of the expendable materials (e.g. wood, nails, sandpaper). It will also cover professional development costs.

Budget Period: From June 2015 to June 2016

"We Learn Through Making"
Re-Introducing Woodworking into a K-8 Progressive Laboratory School Setting

2a. What is the Project's Goal?: In the early part of the 20th century Progressive schools maintained that working with both hands and mind was an essential component of authentic learning (Dewey, 1916/1944; Eisner, 2000). Woodworking was taught in the Progressive school curriculum along with other practices, such as weaving, cooking and gardening - what Dewey (1902/1990) referred to as "occupations" (p.132). A recently discovered historical document in the Falk school archives--written during the early years of The Falk Laboratory School--reveals that children had experienced woodworking as an integral part of the curriculum. **Our project goal is to re-introduce woodworking into the Falk School K-8 curriculum. We plan to create three mini woodworking studio spaces, one for each level--Primary (K-2), Intermediate (3-5), and Middle School (6-8) - and develop a woodworking program integrated into our K-8 curriculum.** It is not our desire to have a separate 'shop' class with a woodshop specialist. It is our desire, as the primary investigators of this project, to collaborate and work alongside our colleagues at Falk School, supporting them in learning how to integrate creative woodworking into their curriculum with a focus on the arts and technology. Parents and the university community will be invited to participate in this endeavor. Our experience, lessons, and insights will then be shared with teachers in other schools, both public and private, as well as community organizations, such as the Create Lab at Carnegie Mellon University, Children's Museum, PAEYC (Pittsburgh Association of the Education of Young Children) and PAISTA (Pittsburgh Area Independent Schools and Teachers Association), through conference presentations, workshops, and papers.

2b. What relevant literature was the impetus for this goal?:

In a recent investigation of our school's Progressive roots in the 1930's, we learned - much to our delight! - that woodworking was an essential part of our curriculum. In many Progressive (and laboratory) schools during this era, it was a common and valued practice for woodworking to be included in children's lives (Depencier, 1967; Dewey 1902/1990; Mitchell, 1934; Pratt, 1948). Even today a few of these Progressive schools continue this tradition (Cuffaro, 1995; Nager and Shapiro, 2000). At Falk Laboratory School we want to better understand our Progressive roots in woodworking, and as we reintroduce it into our curriculum, we want to explore what new meanings woodworking experiences from the past will take on when framed by our contemporary context.

Two scholars, Nancy Curry and Erik Erikson - both who taught and conducted research at the University of Pittsburgh - speak to us on the the importance of including subjects such as woodworking in our contemporary curriculum. In *Beyond Self-Esteem: Developing a Genuine Sense of Human Value* (1990), Curry and Johnson explicate how children develop an authentic sense of self-confidence. It is not through the praise of adults, it is through developing skills and competencies in specific domains. Erikson in *Childhood and Society* (1950) reaffirms this. He proposes that children between the school age years of 5-12 enter a phase of pycho-social development he has identified as Industry vs. Inferiority. During these years children experience

a tension between the inner desire for competence and the social pressure to be competent - most often in school settings. If they fail to accomplish skills in an area of interest or passion, they experience a sense of inferiority in comparison to their peers. Becoming competent in a desired area such as woodworking, soccer, reading, or drawing deepens a child's sense of self-worth. In the Primary, Intermediate and Middle School grades at Falk, we have observed that many children find working with wood, mastering the use of hand tools, and creating tangible, three-dimensional wooden objects to be a deeply satisfying and meaningful experience - one that leads to building competence. As the psychologist Claire Golomb (1974) suggests, creating three-dimensional objects with one's hands is a natural inclination of young children.

Falk School's current interest in place-based education (Sobel, 2008) also reinforces how woodworking will be beneficial to our students. In *The Last Child in the Woods*, Richard Louv (2006) addresses the importance of children spending time with nature and the outdoors in nurturing their overall wellbeing. At our lab school, integrating environmental education into our curriculum has led to the creation of a natural habitat and trail on the hillside behind our school. Woodworking would provide opportunities for children to more deeply understand the properties of wood as a living natural material; observe, study, and gather other natural materials to be used in the woodworking studios; create artifacts for our nature trail - such as birdhouses, birdfeeders, and outdoor furniture; and design outdoor sculptures from natural materials and wood that could be shared with the Falk and Pitt community.

In *Democracy and Education* (1916/1944), John Dewey argued the importance of educating both the bodies and minds of children, challenging the separation of the two--so prevalent in contemporary schooling. At Falk, we have been highly influenced by Dewey's work in this area. Twelve years ago, one of our parents introduced the Alexander technique to all the grades. (Alexander and Dewey were friends and shared common beliefs in integrating the body and mind in education). Within a few years, a yoga studio became a central part of our school environment. Now every child in the school engages in yoga and mindfulness practices. We believe that re-introducing woodworking into our school would further support this mind-body connection.

The curricular goals of a technology education program at the elementary level often focus on learning to use the computer and software applications. Yet the Association of Computing Machinery (Wilson et al., 2010) and the National Academy of Engineering (Katehi et al., 2009) have both emphasized the need for a principled and expansive curriculum that will position children to be not just users but rather designers and builders of new technologies. At Falk, we have broadened the computer science component of our technology curriculum over the past several years and seek to more intentionally incorporate the engineering processes of identifying a need, designing a solution, building from design, and testing and refining the product. The woodworking studio project will support this endeavor by making the tools, materials, space, and mentorship available for children and teachers to design and build.

There is a well-documented trend of attrition of girls and students of color in STEM disciplines, emerging by middle school (AAUW, 1996) and continuing through higher education (Chen & Soldner, 2013). Bernstein (2010) identifies three habits of mind of *fluent technology engagement*: (1) approaching technology as a tool and a creative medium, (2) understanding how to engage in a design process, and (3) seeing oneself as competent to engage in technological creativity. It is crucial that we nurture a diverse generation of children with these habits of mind, from the points of view of both parity in career paths and future technological development - diverse perspectives result in better design. By providing multiple access points to our technology curriculum through projects such as the woodworking studio, we hope to capture and maintain the interest of all students in STEM.

2c. What is the design of the project?: We have designed this project around the following questions.

What happens when woodworking is reintroduced into a K-8 laboratory school? This question conceptualizes *our project goal to re-introduce woodworking into the Falk School K-8 curriculum.* By asking 'what happens,' we seek to capture the overarching narrative of what occurred during the course of this investigation - being attuned to the teachers' and children's experiences, inquiries, learning, interests, struggles, outcomes, connections, and possible directions for the program.

Under this umbrella question, we also investigate:

- **How can we use woodworking to connect us to our history as well as our Progressive roots?** How has woodworking been used at Falk in the past? How has it been used at other progressive lab schools, past and present? What new meaning do woodworking experiences from the past take on when framed by our contemporary context?

- **How does woodworking connect us to our city?** Contemporary Pittsburgh has been strongly shaped by its industrial past - architecture, a culture of innovating and working with one's hands, and even green design. More recently, the Maker Movement has taken hold here in no small part because of Pittsburgh's history and ethic of industry.

- **How can we approach woodworking from an aesthetic perspective?** We would like to make a distinction between a shop class, where the goal is to make a functional item or learn a technical skill, and artistic woodworking. Both of our school's art teachers are on the investigative team.

- **How do educators support each other (collaborate) to identify opportunities to build woodworking into their classrooms/curricula, and what projects result?** How can we connect with educators that are immediately attracted to the project as well as with educators that do not have as high a comfort level or natural interest? What projects develop from emerging lines of inquiry, and how can successful experiences be articulated and documented as a resource for other educators?

- **How can pedagogical documentation capture and interpret what happens in this inquiry?** The form of pedagogical documentation that we use in our practice is informed by the Reggio approach (Rinaldi, 2001). It includes photographs and recordings of children's work and children at work, children's words and conversations about their work, children's many forms of representation (e.g. drawing, model building, clay), teachers' observations and interpretations, reflections on why the exploration and the work were meaningful, and reflections on what all of this suggests about where to go next.

- **What are the implications for other educators desiring to include woodworking in their classrooms or schools?** Practical guidelines for implementing a woodworking program, including materials, tools, space, professional development, and curricular activities will be documented and shared.

2d. In what context will the project be conducted?: Falk Laboratory School is an urban K-8 school on the campus of the University of Pittsburgh. Falk was established in 1931, as a school with deep Progressive roots. Currently, it has 376 students. The Primary grades (K-2) serve 131 children, the Intermediate grades (3-5) serve 130 children, and the Middle School grades (6-8) serve 115 children.

Collaboration and *parent/community involvement* are valued highly at Falk. Falk also provides exemplary programs in both *art* and *technology*. Briefly we have delineated what these four areas look like in our context.

Collaboration: Our collaboration model at Falk has been inspired by Baji Rankin's (1995) concept of collaboration - "a mutual guiding of the educational process by participants" (p. 34). We view collaboration as a reciprocal interaction, embracing a sense of community. Each participant is open to possibility and influences the other. Each assumes the lead at different times.

Collaboration at Falk frequently takes place between the teachers of the Humanities (e.g. art, music, theater, yoga, movement, library, environmental education, and technology) and the teachers of other classroom disciplines (e.g. science, social studies, mathematics, writing, literature and Spanish). This takes the form of scheduled weekly 'push-ins' as well as spontaneous collaborations arising from the children's and teachers' emerging interests. Collaborations are typically co-designed and co-taught by the Humanities and classroom teachers. In this fashion, we, the investigators, will work alongside classroom teachers and support them in teaching woodworking skills, designing explorations/projects, and integrating woodworking into both current and developing curricula. For example, in our current fifth grade visual arts curriculum, we study puppetry from other cultures. We would use the woodworking stations to carve our own puppet heads and hands, inspired by puppetry traditions from around the world and then use them in our collaborative performance featuring music, dance and folk tales. At the middle school level, students would use the station for an art and environmental education collaboration to build structures for our outdoor environment. Or with third grade

currently exploring birds in our school's backyard, the children could build one-of-a-kind birdhouses - a collaboration with the art, environmental education and classroom teachers.

Parent/Community Involvement: In the article *Parents as Partners* (1975), Breslin and Marino describe the many possible ways they invited parents to participate in their woodworking studio. Their most successful approach was asking parents to sign up to work with children one-on-one or in small groups each week at a specific time. As parents supervised small groups at the woodworking bench, teachers freely attended to the rest of their class.

In our Falk community we have many parents with backgrounds or careers in carpentry who are willing to work with students on specific projects and processes. For example, a few years ago, a parent-carpenter worked with a group of middle school students to design benches for the Falk's nature trail. Currently, Thaddeus Mosley, one of our grandparents and an accomplished Pittsburgh sculptor who works in wood, would be asked to demonstrate his process and share his work with students.

Further, the Art Program regularly collaborates with an Artist-in-Residence from Gateway to the Arts/Pittsburgh Center for the Arts to work with all the grade levels. This year we would choose an artist who works with wood.

Art: The studio arts teachers want to bring an aesthetic dimension to woodworking with children that is often not seen in the crafty, look-alike projects so commonly found in 'Woodworking for Children' books. Consistent with our Progressive philosophy of art education at Falk, we plan to engage in woodworking investigations that are informed by the children's interests and development and that invite open-ended exploration, incorporate a wide range of materials, (both traditional and nontraditional, natural and upcycled, two- and three-dimensional), and inspire innovative, imaginative, and individual responses. An emphasis will be on free choice and not on look-alike projects. For example, Middle School students would be invited to use the woodworking studio when they are building props for our school musical, which is taught for one month through our visual arts curriculum. Or in the kindergarten classrooms, children would build furniture or vehicles for the miniature dolls and animals used in their block play.

Technology: We are actively expanding the technology curriculum to look beyond computer-based activities, seeking to instill in children an identity as creators, not just users. Technology curriculum frequently centers on learning to use software applications that immerse children in a virtual world of someone else's design. This limits exploration to the parameters that the designers have laid out. A woodworking thread in our curriculum would give children the tools and techniques to realize their own designs in a material of substance. For example, our fifth grade students design motorized figures using a microprocessor that can be programmed to control lights, servos, and motors. They typically use found materials to build the figures. With a woodworking studio, they could make parts to fit their figures and extend their functionality. This in turn offers a possibility to expand our technology curriculum to incorporate more elements in the engineering and design process.

2e. What Procedures/Guidelines will be used?:

The procedures/guidelines that we follow are in accordance with the University of Pittsburgh guidelines and policies for working with children, including parental consent, photographing and videotaping. Below we have delineated the procedures and timeline for this project.

From June, 2015, through September, 2015: We, the investigators, will order the workbenches, assemble them, and set up the three mini-woodworking studios, one on each floor of the school. We will also order tools and materials and organize them for the children's access and use. We will visit sites that have woodworking studios for children, such as the Children's Museum's Make Shop and the Children's School at Carnegie Mellon University, and read resources that delineate what is important to include. We also plan to immerse ourselves in Progressive education literature to better understand the place of woodworking in children's lives and the curriculum. In addition to preparing the three work spaces, we will begin to map out steps to introduce woodworking to the faculty and students at Falk. We will plan ways to incorporate woodworking in our own classrooms and collaborate with other faculty. In addition, we will map out potential parent and community connections. All of this we will write up in an intended plan for implementation.

From September, 2015, through October, 2015: We will begin the implementation of our intended plan. We will organize the orientation and professional development for the faculty in using the tools and materials safely and in developmentally appropriate ways with children. We will also meet with classroom teachers to brainstorm and plan how to introduce each classroom to the woodworking studios. We will work with individual teachers map out curricular directions and possible collaborations for the school year, including the parent and community connections.

From October, 2015, through May, 2016: We will continue the implementation of our plan - which is introducing the children and classrooms to the woodworking studios, alongside the classroom teachers. With an emphasis on free choice, children will be invited to work on projects of their choosing. They will also be invited to use the woodworking studios to make their ideas visible for specific classroom curricular projects. Parents and community artists will be invited to work with us. Throughout this time, we will be use pedagogical documentation to reflect on our process. We will also meet monthly to reflect and assess.

From June 1, 2016 through June 30, 2016: Formal assessment of the Woodworking Grant. Assemble documentation for presentations or publications.

2f. How will the outcome of the project be assessed?: We, the investigators, will meet formally once a month to assess and document the progress of the woodworking program. The final assessment will be during June, 2016. We will use the process of pedagogical documentation to assess the project, a process that we have used with other school projects.

This includes photographs and recordings of children's work and children at work, children's conversations about their work, children's many forms of representation (e.g. drawing, model building, clay), teachers' observations and interpretations, reflections on why the exploration and the work were meaningful, reflections on what was successful and what we would change, and reflections on what all of this suggests about where to go next.

2g. What is the significance of the project?: With the current emphasis on STEM and the Maker's movement (Martinez and Stager, 2013; Wilkinson and Petrich, 2013), a renewed interest in learning through making, doing, and inventing is becoming an energizing part of the curriculum in many schools, both locally in Pittsburgh and nationally. Falk Laboratory School was founded as a Progressive school, and being a Progressive school, it has embraced and practiced this belief-- that children learn through doing--since its beginnings in the 1930's. We want to extend the conversation on Progressive education and making--particularly woodworking-- with our colleagues in Pittsburgh independent and public schools and in institutions, such the Create Lab at CMU, the Make Shop at the Children's Museum, and the Tech Shop in Bakery Square--as well as with our colleagues in laboratory and independent schools across the nation. We believe that other Laboratory and Progressive schools will be eager to enter into this conversation and learn from our experience.

Also, a sorely missing element in the current Maker Movement--the aesthetic dimension--will be integrated into the woodworking curriculum and insights gained will be shared.

2h. How will the findings be disseminated?: The investigators plan to share their experience, curricula and insights/lessons learned through presentations and/or workshops with the NAEA (National Art Education Association) at the annual conference; with IALS at their annual conference; and with PAISTA (Pittsburgh Association of Independent Schools and Teachers) at their bi-annual conference. Other possible outreaches are PAEYC and PAIS/NAIS, the IALS online journal, and the NAEYC journal, *Young Children.*

3a. Investigators' Biographies and Roles:

- Pam Krakowski Armstrong, Ed.D
  Dr. Armstrong is a Clinical Assistant Professor in the School of Education, University of Pittsburgh, and teaches visual arts to children, K-4, at the Falk Laboratory School. She also supervises student teachers in art and museum education. She has collaborated with the early childhood teachers at Falk since 1996, using the Reggio Approach as inspiration. She has been inspired by Progressive educators, since she began her art education training in the mid-70's, is a huge fan of John Dewey, and continues to draw from his writings for inspiration. A few years ago she visited the City and Country School founded by Carolyn Pratt and The Bank Street School founded by Lucy Sprague Mitchell in NYC. She was inspired by the woodworking program in both of these schools founded during the Progressive education years. It has been her dream to include woodworking in the early childhood program at Falk. Currently, she is taking classes on the fundamentals of woodworking and furniture making.

Dr. Armstrong's role in this project is to oversee the woodworking studio on the Primary floor. She will actively be involved in every phase of the project beginning with researching, ordering, setting up the three workbenches/tools/materials, structuring and implementing professional development, documenting and assessing the project, and extending professional outreach. She will coordinate creative woodworking experiences for the primary children and their teachers.

- Cheryl Capezzuti, M.Ed.
  Ms. Capezzuti has been a member of the Visual Arts Faculty at the Falk Laboratory School for five years. She teaches grades 5 through 8. Prior to coming to Falk she was an Artist-in-Residence for the Pennsylvania Council on the Arts through which she worked as an artist in over 50 different schools in the region. She was also a visiting lecturer at Duquesne University where she taught classes on Integrating the Arts into the classroom to pre-service teachers. In addition to teaching at Falk, she is a master puppetmaker with many commissions and performances to her credit. She regularly shares this passion for puppetry with her students.

  Ms. Capezzuti's role in this project is to oversee the woodworking bench for the middle schools. This will include initial set-up, ordering tools and supplies, organizing safety training, planning professional development for her peers, and developing opportunities for middle level students to use woodworking as a tool for expression and creativity.

- Autumn Dillaman, MAT
  As an educator at Falk School for nearly ten years, Autumn Dillaman has worked in many different capacities, successfully progressing from intern to master teacher. During this time, the philosophy of the school has become deeply ingrained in who she is, guiding her as she directs students through educational experiences based on the 21 wish foundation of the school's vision. Throughout her time at Falk, she has sought to engage, teach and motivate students while preserving an environment of inquiry, interest and achievement. Currently, she is responsible for a fourth and fifth grade looping classroom where she teaches math, social studies, science, and language arts. In addition, she is the co-chair for the mathematics curriculum committee, the leader of the intermediate math club, the creator of the yearly edition of the Telefalk, the middle school girls basketball coach, and the lead for a week-long summer camp held at Falk, called Camp Create. Autumn has enjoyed woodworking as a hobby since she was a child and has recently started making furniture for her home and items for her classroom.

  Ms. Dillaman's role in this project is to set-up and oversee the woodworking bench for the intermediate level classrooms. This will include initial set-up, ordering tools and supplies, organizing safety training, planning professional development for her peers, and developing opportunities for intermediate aged students to use woodworking as a tool for expression and creativity.

- Laura Mayfield Tomokiyo, PhD
  Dr. Tomokiyo is a Clinical Assistant Professor in the School of Education, University of Pittsburgh, where she is responsible for K-8 technology instruction and curriculum development at the Falk Laboratory School. She implemented a reimagining of the technology curriculum, transitioning from a screen-based program to a broader one incorporating many aspects of engineering, design, and computational thinking. Prior to coming to Falk, she was Project Scientist at the Carnegie Mellon Robotics Institute working primarily in collaboration with UNESCO; before CMU she was Principal Research Scientist working in multilingual text-to-speech synthesis at Cepstral, LLC. She spends time every year in Japan, where she has been inspired by the rich and purposeful incorporation of woodworking in the curriculum.

  Dr. Tomokiyo's role in this project is to integrate woodworking components into the technology curriculum, to develop collaborative projects with classroom teachers, and to begin to envision, through participation in and observation of this project, a transition of the current computer lab space to a more multifunctional design and engineering space.

3b. Timeline: June 1, 2015 to June 30, 2016.

As mentioned earlier, the procedures and the timeline are intertwined and are articulated in the procedure section (2e). We have included them again here.

From June, 2015, through September, 2015: We, the investigators, will order the workbenches, assemble them, and set up the three mini-woodworking studios, one on each floor of the school. We will also order tools and materials and organize them for the children's access and use. We will visit sites that have woodworking studios for children, such as the Children's Museum's Make Shop and the Children's School at Carnegie Mellon University, and read resources that delineate what is important to include. We also plan to immerse themselves in Progressive education literature to better understand the place of woodworking in children's lives and the curriculum. In addition to preparing the three work spaces, we will begin to map out steps to introduce woodworking to the faculty and students at Falk. We will plan ways to incorporate woodworking in our own classrooms and collaborate with other faculty. In addition, we will map out potential parent and community connections. All of this we will write up in an intended plan for implementation.

From September, 2015, through October, 2015: We will begin the implementation of our intended plan. We will organize the orientation and professional development for the faculty in using the tools and materials safely and in developmentally appropriate ways with children. We will also meet with classroom teachers to brainstorm and plan how to introduce each classroom to the mini-woodworking studios. We will work with individual teachers map out curricular directions and possible collaborations for the school year, including the parent and community connections.

From October, 2015, through May, 2016: We will continue the implementation of our plan - which is introducing the children and classrooms to the woodworking studios, alongside the classroom teachers. With an emphasis on free choice, children will be invited to work on projects of their choosing. They will also be invited to use the woodworking studios to make their ideas visible for specific classroom curricular projects. Parents and community artists will be invited to work with us. Throughout this time, we will be use pedagogical documentation to reflect on our process. We will also meet monthly to reflect and assess.

From June 1, 2016 through June 30, 2016: Formal assessment of the Woodworking Grant. Assemble documentation for presentations or publications.

4. Collaboration with other laboratory schools (if relevant). We do not have a specific collaboration planned with another laboratory school. However, we do plan to contact and other schools in our area who have woodworking for children, such as the Children's School at CMU and St. Edmund's Academy. We also have a close relationship with our colleagues in other campus schools such as the Carlow Campus School and the Cyert Center for Early Education at CMU and look forward to entering into conversations with them.

5. Projected Budget Expenses: The investigators are requesting a $2000 grant for three woodworking workbenches - one for the Primary mini-studio (Community Playthings), one for Intermediate mini-studio (Rockler), and one for the Middle School studio (Rockler).

One 26" high Workbench with an extra vice (Community Playthings)	450.00
Two workbenches (Rockler)	1550.00
Total	$2000.00

6. External Funding Options:
Falk School is planning to match the $2000.00 by purchasing all of the woodworking hand tools for the three mini woodworking studios. It will support the sustainability of the project by yearly purchasing all of the expendable materials (e.g. wood, nails, sandpaper, etc). It will also pay for any professional development for the classroom teachers, such as a workshop on woodworking at the Children's Museum or an invited guest woodworker. The investigators also plan to engage the Falk School community with the woodworking initiative, accepting donations of tools and materials from families.

7. Letter of support from Dr. Jeff Suzik, the director of Falk Laboratory school is attached.

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