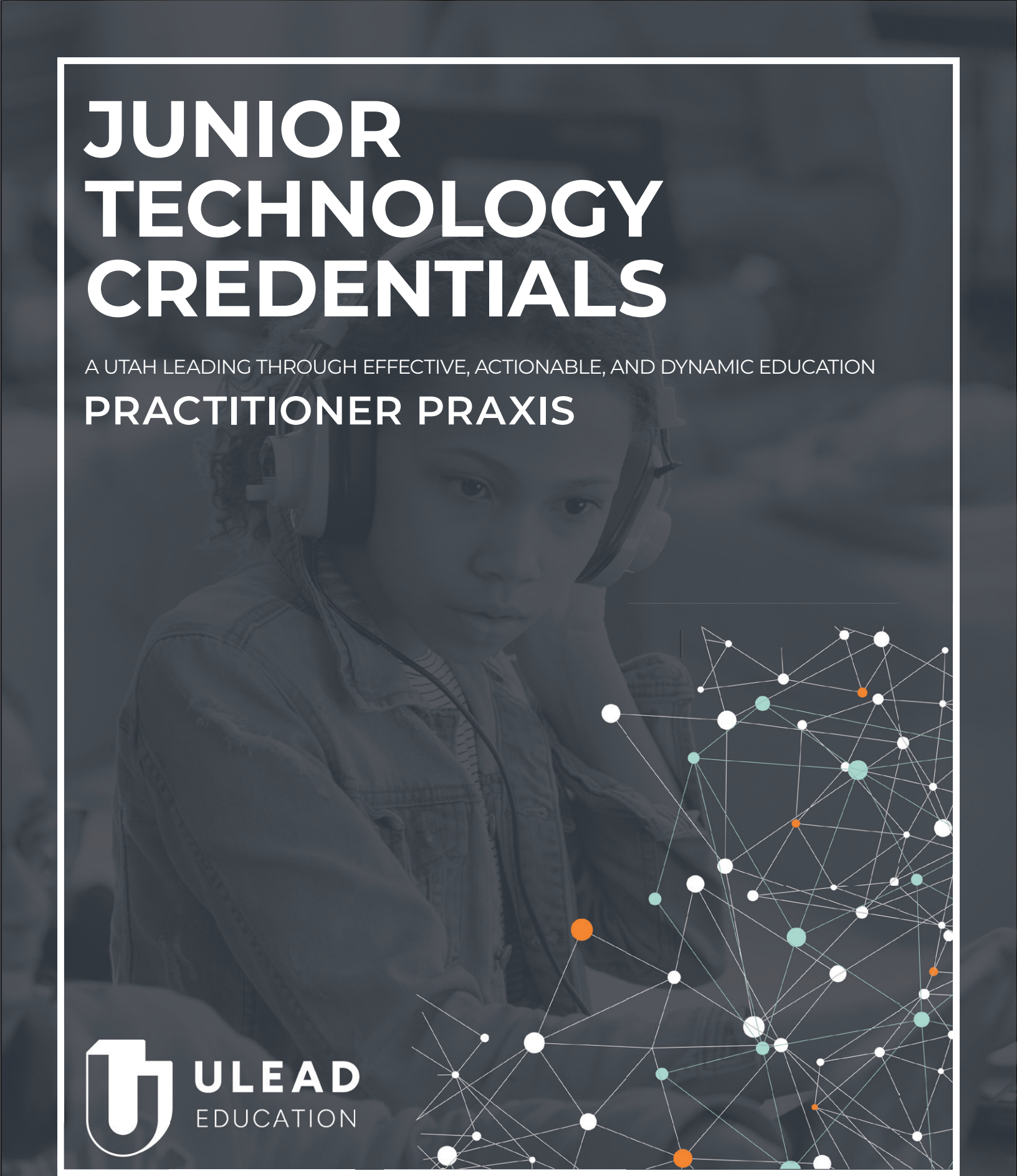
JUNIOR TECHNOLOGY CREDENTIALS

A UTAH LEADING THROUGH EFFECTIVE, ACTIONABLE, AND DYNAMIC EDUCATION

PRACTITIONER PRAXIS



ULEAD EDUCATION

TEACHER FELLOWS NETWORK

ABOUT THIS REPORT

Utah Leading through Effective, Actionable, and Dynamic (ULEAD) Education was created to find, research, and highlight proven practices in Utah schools for replication statewide. ULEAD partners with practitioners, researchers, and education organizations to develop and curate resources, foster collaboration, and drive systemic change for improved student outcomes. The ULEAD Clearinghouse is a growing repository of innovative, effective, and efficient practice resources and tools to support educators.

A praxis is exercise of a science, art, skill, or the practical application of theory. A ULEAD Practitioner Praxis Report highlights a specific practitioner practice or program that demonstrates promising innovations and has positive outcomes, but may lack one or more fully developed aspects of an Innovative Practice Report. A Praxis may serve as a starting point for further data collection, practitioner collaboration, additional scaling up, or formal research.

The ULEAD Steering Committee, composed of current Utah educators and stakeholders, informs the focus priorities that ULEAD researches. This report addresses Student Achievement through Strategic Engagement with Technology.

ULEAD collaborates with Insitutes of Higher Education and education practitioners to develop reports. This report was developed in partnership with the Utah Teacher Fellows as a culminating activity. Fellows worked to identify outliers and complete field research resulting in thematic evidence of influential practices in Utah public education settings.

UTAH TEACHER FELLOWS

The Utah Teacher Fellowship Program aims to improve the teaching and learning conditions in Utah's public schools and provide educators in the program with a chance to refine their teacher leadership skills.

PRACTITIONER RESEARCHER

Kayla Towner
kayla@pd.uen.org

PRACTITIONER CONTACTS

Hollie Fisher
hfisher@dsdmail.net

Ashtin Johnson
ashtijohnson@dsdmail.net

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digital personalized learning and credentialing "represents a more fundamental shift in how education and skills data are gathered, stored, taught, verified, accessed, and signaled in the lab or market"

(Groger et al, 2022, p. 3)

PERSONALIZED LEARNING

EXECUTIVE SUMMARY

The teacher-developed Junior Microsoft Expert (JME) program is designed to teach elementary students to become innovative 21st-century learners. The JME program helps students gain essential knowledge and skills using Microsoft tools and apps and to provide opportunities to demonstrate mastery through purposeful activities and tasks. Two Microsoft Innovative Education Expert (MIEE) teachers have developed, implemented, and refined a program for students modeled on the Microsoft credential for adults.

OUTCOMES

- Over 200 3rd-5th grade students certified as Junior Experts in the 2022-2023 school year.
- An additional 50 students achieved a secondary level of certification with the Junior Microsoft Innovative Expert program.
- Program expansion to school and district-wide implementation.

Lakeside Elementary
Davis School District
Hollie Fisher,
Third Grade Teacher

Kay's Creek Elementary
Davis School District
Ashtin Johnson,
Fifth Grade Teacher

RESEARCH HIGHLIGHTS

Students with computers at home, regardless of socioeconomic status, outscored their peers on the 2019 NAEP mathematics assessment (National Center for Education Statistics, 2019).

"Globally, students performed better in schools where… teachers had skills, professional development, and time to integrate digital devices in instruction" regardless of socioeconomic status, school type, and location (Byrant et al., 2020).

"Every child needs this opportunity to learn, and do, and become!"
- District Director

INNOVATIONS

- Junior credentialing for young students similar to advanced technology credentials for adult learners
- Curriculum and real-world engagement projects designed to show mastery
- Digital badging and celebrations of learning
- Opportunities to advance personalized learning through self-selected projects

SCALE

The current program has been shared school and district-wide and allows for reproduction and modification with available resources. Significant resources are required including 1:1 devices, internet access, Microsoft platforms, and teacher knowledge. The program could be adapted to any preferred or available platforms.

"I could not believe that my little eight-year-old was able to do more with Microsoft programs than most of the legal professionals I work with… which will help him be successful in his grades to come."
- JME Parent

DISTRICT DEMOGRAPHICS

The Davis School District, a suburban district headquartered in Farmington, Utah, serves nearly 74,000 students in over 90 schools in Davis County (Utah State Board of Education, 2022b). It is the second largest district in Utah with 5 preschools, 63 elementary schools, 18 middle schools, 11 high schools, and 9 alternative programs (Davis School District, 2023). According to the Utah Kids Count Data Card, 17.6% of Davis County students receive free or reduced lunch while just 5% of the total county population lives in poverty (Voices for Utah Children, 2023). Median household income, access to broadband Internet, educational attainment, and two-parent households for Davis County are all above the state and national averages (Education Demographic and Geographic Estimates, 2021).

The Davis District is part of Utah State Board of Education Digital Teaching and Learning Grant Program. The LEA plan for Cohort 5 (2021-2025) includes the following goals:

Long-Term Outcome

Personalized Learning Experience
All DSD students will have a personalized learning experience and this will result in the following: 1. By 2025, 98% of students will graduate college and career ready. 2. Using a baseline from spring 2021, by 2025 students at each grade level will make a 4% gain in their progress toward respective profiles of a 3rd, 6th, 9th, and graduate student (as established by Davis School District).

Intermediate Outcomes

Each day:
1. Students are at the center of their own learning and are actively involved in defining their learning path.
2. Learners are empowered to develop a growth mindset, cultivate habits of mind, and engage in deep reflective practice.
3. Students choose their own learning resources, co-design their learning experiences, and have flexibility in how they demonstrate their learning.
4-5. Personalization provides all stakeholders with increased cultural, social-emotional, and intellectual growth.

Direct Outcomes

As technology helps students to have a more personalized experience, key software usage will increase.

Through effective professional development, teachers and administrators will increase in fluency with digital tools and use them more frequently.

(Digital Teaching and Learning Grant, 2021)

SCHOOL DEMOGRAPHICS

Lakeside Elementary School

Lakeside Elementary School is located in northern Utah in the city of West Point. The school serves approximately 840 students in grades Pre-Kindergarten through 6th grade (Utah State Board of Education, 2022b). According to the Utah School Report Card (Utah State Board of Education, 2022a) Lakeside students experienced typical achievement and commendable growth in the 2021-2022 school year. Teachers at Lakeside have longevity; 66% have taught for at least 7 years, and 72% have been retained at Lakeside for at least 3 years. Some of Lakeside's unique offerings include robotics, school musical, track club, and Pokémon club. According to the school website, Lakeside is a 1:1 technology school (Lakeside Elementary, 2023). Third-grade teacher Hollie Fisher was interviewed as the lead designer of the JME program and is a Microsoft Innovative Education Expert.

African American or Black	n <10
American Indian	1%
Asian	n < 10
Hispanic or Latino	10%
Multiple Races	4%
Pacific Islander	n < 10
White	83%
Student with a Disability	19%
Economically Disadvantaged	15%
English Language Learner	2%

Kay's Creek Elementary School

Also in northern Utah, Kay's Creek Elementary in Kaysville Utah serves over 600 students in Pre-Kindergarten-6th grades. In the 2021-2022 school year, Kay's Creek students demonstrated exemplary academic achievement and commendable growth, earning an "A" rating on the Utah School Report Card (Utah State Report Card, 2022a). More than half (62%) of Kay's Creek teachers have at least 7 years of teaching experience. Some of the unique club offerings for students include the Dash robotics club, Lego club, student council, and 6th grade orchestra. According to the school website, Kay's Creek also has a 1:1 student to technology device ratio (Kay's Creek Elementary, 2023). Ashtin Johnson, a fifth-grade teacher and Microsoft Innovation Education Expert, was interviewed as a contributor to the JME redesign and lead designer of the Junior Microsoft Innovation Expert (JMIE) program. Kay's Creek Elementary is also a Microsoft Showcase School.

African American or Black	n <10
Asian	n < 10
Hispanic or Latino	5%
Multiple Races	2%
White	90%
Student with a Disability	13%
Economically Disadvantaged	5%
English Language Learner	1%

"Technology can be a powerful tool for transforming learning. It can help affirm and advance relationships between educators and students, reinvent our approaches to learning and collaboration, shrink long-standing equity and accessibility gaps, and adapt learning experiences to meet the needs of all learners."

Office of Educational Technology
U.S. Department of Education

RESEARCH & BACKGROUND

The National Center for Education Statistics (NCES) reports that student performance is significantly affected by technology access. Regardless of socioeconomic status, eighth-grade students with a home computer scored between 13-24 points higher on the National Assessment of Education Progress (NAEP) when they had a computer at home (Gray & Lewis, 2019). They also found that over 1/3 of teachers strongly agreed that technology helped students in their classrooms be more independent and self-directed (Gray & Lewis, 2019). The impact of technology on student learning and achievement is clearly documented, but in the same study, 34% of schools reported lack of support on how to use technology for teaching as a moderate or large challenge.

Technology and software to access technology are in constant change. Artificial Intelligence (AI) advancing at a more rapid rate than ever thought possible is a prime example of this change. Moore's Law states that processor speeds double about every two years, which sets the pace of application and hardware development, yet Stanford's 2019 AI Index found after 2012 speed has doubled every 3.4 months (Saran, 2019). This has specific and immediate effects in education as AI impacts personalized learning, automation, and self-service assistance (Chincholi, 2022).

The rapid rate of change with all technology is important to education because technology skills are a predictor of students' future successes and critical to their career readiness (Piliouras et al., 2014). Despite the need, there are few curricula for technology that specifically highlights skills such as computer networking, systems, or programs for students in the middle school, much less at the elementary school level and nearly non-existent data on effectiveness of such programs for young students (Hollman et al., 2019; Schrum et al., 2015).

At the same time, credentialing for adults, both in education and industry fields, has become a way to access competency-based learning. Certifications of skills mastery ensure consistent learning and ability. Sometimes called "Education 3.0" digital personalized learning and credentialing "represents a more fundamental shift in how education and skills data are gathered, stored, taught, verified, accessed, and signaled in the lab or market" (Goger et al., 2022). These types of credentials can evolve faster than traditional coursework, can target specific skills, and ease barriers to access. It is a process that ensures technological skills and eases "the significant skill gap in our digital world" (Jose, 2022).

Credentials not only use digital platforms for learning, but they are also well suited to technological learning due to the speed at which users need to adapt and apply skills.

Technology credentials are becoming widely accepted in

> ...technology skills are a predictor of students' future successes and critical to their career readiness.
>
> (Piliouras et al., 2014)

the job market and have becoming increasingly common in secondary and post-secondary education. While less research exists on program adaption for students, especially at elementary ages, there is evidence that certificate programs can increase 21st century skills for students. A 2019 study of high school students in a certificate program for informational and electrical technology found students in the experimental group had "higher academic self-efficacy, information literacy, teamwork, problem solving, and lifelong learning skill levels than the comparison group" (Çakır et al., 2019).

Several studies indicate that high school students had higher motivation to learn when engaged in hands-on problem-based learning alongside 21st century skills that promote analytical thinking (Hollman et al., 2019).

Credentialing to keep pace with technological innovation is coupled with the need to develop 21st century skills in students in the JME program. The JME model is a technology credential program that engages elementary students with the same kind of learning that is available to adults and older students.Microsoft has a variety of education programs that support "a thriving community of passionate educators and school leaders who are constantly learning, growing, and working together to change students' lives and build a better world" (Microsoft, 2023b). These programs include various learning and certification programs, such as the Microsoft Innovator Education Expert (MIEE) and the Showcase Schools program.

Program Background

The Microsoft Showcase Schools program works with schools to design education transformation based on the K-12 Education Transformation Framework (Microsoft, 2023c). The framework for education transformation is based

(Microsoft, 2023b, 2023c)

on extensive research and collaboration with educators and policymakers worldwide and is designed to help schools improve leadership and policy, teaching and learning, intelligent environments, and student and school success (Microsoft, 2023a).

Schools self-nominate to become a Showcase Incubator, design and implement a transformation plan, and then use their successful transformation results to become a Showcase School. Within the Showcase School program, educators "create student-centered, immersive, and inclusive experiences that inspire lifelong learning, stimulating development of essential future-ready skills so students are empowered to achieve more" (Microsoft, 2023c). The kind of immersive experiences created can vary but the Junior Microsoft Expert program developed in Davis schools are an example of hands-on experience.

The Microsoft Showcase School program touts improved leadership, teaching, and student success. For instance, Abraham Lincoln High School in Brooklyn implemented the program in 2017 with two teachers effectively utilizing Microsoft Teams. Today, the school has 124 teachers and over 60 support staff using Microsoft Teams innovatively to provide students with the digital learning experience and 21st-century skills. Canyon Creek Elementary School in Utah is another example of a Microsoft Showcase School focused on teaching 21st-century learning

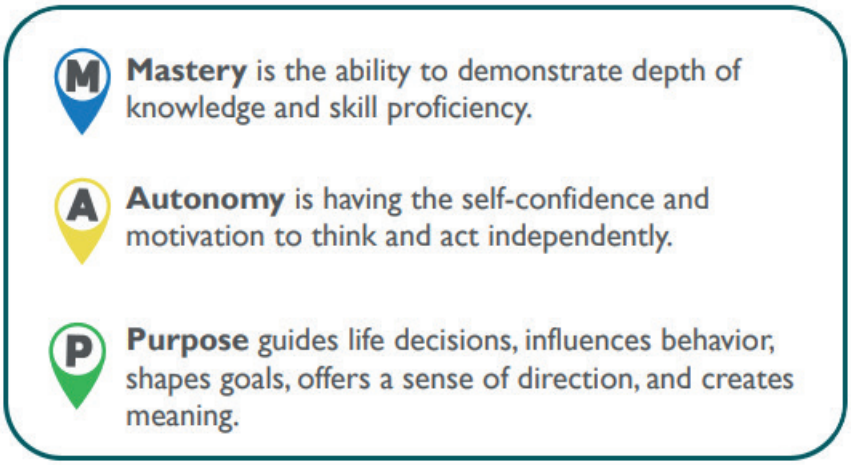
skills to students by using Microsoft tools to solve real-world problems collaboratively (Microsoft Education, 2023).

These schools' success stories show that implementing programs similar to the JME program has resulted in significant benefits for students, teachers, and staff, such as improved collaboration, effectiveness, independence, and overcoming challenges.

The Microsoft Innovation Education Expert program engages teacher leaders and coaches that have "adopted 21st century teaching and learning, take risks, and strive to improve their pedagogy to integrate technology tools that improve student outcomes" (Microsoft, 2023b). Through a collaborative network and learning opportunities, teachers learn to better integrate technology and support integration of tools and hands-on learning experiences for those they work with. Experts are encouraged to train and present knowledge to others to improve innovative teaching practices on a larger scale. The JME program is modeled after the learning experiences in the MIEE program.

Utah Connection

Utah's Portrait of a Graduate identifies the ideal characteristics of a Utah graduate after going through the K-12 education system (Utah State Board of Education, 2019). These characteristics are not meant to be quantifiable or measured but aspirations. These are skills that students can learn at home and school. These characteristics include mastery, autonomy, and purpose (MAP). Mastering a subject means demonstrating depth and skill proficiency, while autonomy refers to self-confidence and motivation to think and act independently. Purpose guides life decisions, influences behavior, shapes goals, and offers a sense of direction.



Utah's Portrait of a Graduate, 2019

The Junior Microsoft Expert (JME) program has potential to support the Utah Portrait of Graduate characteristics. For example, a digital literacy competency asks students to "adapt, create, consume, and connect in productive, responsible ways to utilize technology in school, academic, and professional settings." By participating in the JME program, students can demonstrate mastery in using tools like PowerPoint and Sway and show a deeper understanding of the content through and with technology. They can also exercise autonomy by creating projects on their own. Finally, using these tools can give students a sense of purpose, as they can use them to shape their goals and promote responsible online behavior.

Both Kay's Creek and Lakeside Elementary are in the Davis School District. The Davis School District Learning First plan includes a goal to "use technology to enhance and personalize student learning" under the focus to provide "an innovative, relevant, well-rounded education for each student" (Davis School District, 2021, p. 3) which is in line with the goals of the JME program. Related research about the use of technology credentials for students and adults indicates that hands-on technology learning and technology credentials may be critical components of achieving this goal.

PRACTICE OVERVIEW

The Junior Microsoft Expert (JME) program is designed to help individuals gain the necessary knowledge and skills to become proficient in the Microsoft software platforms. Through learning about the various platforms, testing, and applying knowledge to complete tasks, students build their expertise in specific areas and become experts in the Microsoft Office software. Through the JME program, students hone their existing skills and expand their understanding of the Microsoft software platforms.

PRACTICE OBJECTIVES

After Fisher became a Microsoft Innovative Expert (MIE), she noticed her own students could complete similar learning tasks. She initially created learning tasks as an enrichment program for early finishers, but all her students completed her tasks in 2018. Fisher noticed students were empowered and confident by becoming Microsoft experts often becoming independent troubleshooters. Students were able to use digital tools to enhance their learning and were solutions oriented when faced with challenges. In response to students' interest in continuing their digital development, Fisher established the Junior Microsoft Expert (JME) program to be more intentional and thorough in teaching essential 21st-century tools.

Similarly, Johnson noticed her students learning new skill sets and implementing the 4 C's (communication, collaboration, creative thinking, and critical thinking) in their everyday learning. Their work with Microsoft tools helped her students' become experts. Even after engaging in the JME work, students desired further learning and development, so Johnson created the Junior Microsoft Innovation Expert program as a second level of certification.

PRACTICE IN ACTION

Students in the Junior Microsoft Expert Program study and show mastery of six Microsoft apps through a Canvas course. Within each module, students watch an instructional video about the app and complete a quiz to demonstrate mastery. Students must earn at least 80% of each quiz to advance. Then, students submit a mastery project created with each app to demonstrate their expert skills. When these requirements are met, students are awarded a badge in Canvas, which can also be added to their JME lanyard. When all six badges are complete, they are awarded the title of "Junior Microsoft Expert" and are even able to purchase a custom t-shirt highlighting their achievement.

At Lakeside Elementary, Fisher set out to create a student Junior Microsoft Expert credential program for her students. Students begin coursework with general computer maintenance requirements alongside digital citizenship and information literacy skills. Fisher introduces students to the troubleshooting R's – Refresh, Restart, and Reboot. If a student experiences issues, she teaches them to refresh the program and the window. Then she has her students restart the program if it's still not responding. Finally, students reboot their computers. If all that fails, they can then come to an adult for support.

Once students have some basic digital guardrails, they are introduced to the program through an overview video in Sway and the Canvas course. Fisher says giving tools a real-life purpose makes them more meaningful and accessible to students. Often, she starts teaching her students how to use Outlook and OneDrive. Students can use Outlook right away to email their family members. In OneDrive, the students learn how to keep track of their files. They learn how to create folders and how to name their files to stay organized throughout the year. They are also able to access their files from home or school after setting up OneDrive.

Fisher combines learning in the Canvas coursework with each app and her classroom content throughout the year. For example, students give presentations using PowerPoint to showcase their learning about social studies topics. Learning continues through the year. Ceremonies in March and May are culminating events where

Junior Microsoft Expert Program Student Digital Badges

families, community members, and educators celebrate newly minted Junior Microsoft Experts. Each student receives a certificate and small Microsoft-branded promotional items.

With collegial support, Fisher converted the program into a school-wide initiative that includes different achievement and maintenance goals at each grade level.

At Kay's Creek Elementary, Johnson helped refine the JME program and added a second level of learning where students apply skills to more advanced projects. The JMIE (Junior Microsoft Innovative Experts) program is an additional certification that students can apply for. In addition to meeting the requirements for the JME program, students must also create an authentic solution or product. Fifth grade students learn about graphic design and use Microsoft Word to create their own logos.

Some students continued a step further and created their own businesses concepts using Microsoft PowerPoint and Sway. Other students learned about meteorology and the tools used by meteorologists. They were challenged to design a house that could withstand a tornado, and then they created their designs in Minecraft Education. Projects demonstrate the students' creativity, problem-solving skills, and technical expertise. They also show how students can use technology to learn about and solve real-world problems.

Students demonstrate skills through creation of extensive authentic materials. Their tasks are tied to writing, science, math, and social studies standards. They work and develop real world connections, problem solve, use critical thinking skills, and 21st century learning skills. Johnson also uses a pre- and post-test for students to self-evaluate their skills. Speaking about the various applications, Fisher says, "We didn't just learn them to know them. We used them to enhance every facet of our learning."

Implementation

An analysis of technology and the Programme for International Student Assessment (PISA) found that simply having technology access isn't enough to create success. Researchers suggest that technology "must start with learning goals, and software selection must be based on and integrated with the curriculum" (Bryant et al., 2020). Successful implementation of the JME program is dependent upon teacher skill and integration.

Classrooms hoping to replicate the course need access to Microsoft Office 365 tools such as OneNote, OneDrive, Word, PowerPoint, Sway, Teams, Forms, and Outlook. Students must have Internet access and one-to-one devices with headphones are recommended. Teachers need an understanding of Microsoft tools in order to implement the program and support student learning. The Microsoft Learn Educator Center (https://learn.microsoft.com/en-us/training/educator-center) offers extensive professional development and independent guides for educators. It is also important for teachers to incorporate and encourage application of skills through coursework tied to learning standards throughout the year, which requires some advanced planning.

Fisher developed a Microsoft Sway that includes a link to the student-facing Canvas course and with reproducible educator supports including video overviews, digital badges, lanyard cards, certificates, a program logo, a celebratory t-shirt design.

Johnson created the JME Canvas Course to help guide teachers in this program that includes the topics:

- Computer Maintenance Requirements
- OneNote
- OneDrive
- TEAMS
- Word
- PowerPoint
- Sway
- Forms
- Outlook
- Minecraft

Implementation Resources

JME Canvas Course	https://bit.ly/JMECanvas
JMIE Canvas Course	https://bit.ly/JMIECanvas
JME Teacher Resources	https://bit.ly/JMESway
Video Resources	
JME Program Overview	https://bit.ly/JMEHowTo
JME Student Overview	https://bit.ly/JMEStudent
JME Teacher Directions	https://bit.ly/JMEDirections
JME Journey	
Program Highlight Sway	https://bit.ly/JMEJourney

"technology 'must start with learning goals, and software selection must be based on and integrated with the curriculum'"
(Bryant et al., 2020)

Program	Use Example
W	The Word dictate feature assists with brainstorming and essay writing. The immersive reader feature is used in editing.
T	Teams is used for class collaboration through shared videos, files, and discussion.
S	Sway is used to visually present research and writing.
OD	OneDrive provides easy document access and sharing, including at home.
P	The PowerPoint screen recorder allows student creation of how-to videos to support peers and check-in videos to discuss progress towards individual goals.
ON	OneNote is used for blended learning playlists, completing work, organizing resources, and sharing projects.
F	Flipgrid is used to ensure everyone has a chance to speak and be heard.
O	Outlook is used to email digital projects to family and friends.
M	Minecraft allows discovery and demonstration of mathematic concepts such as perimeter and area, engineering skills, and fosters creativity.
F	Forms is used to create and administer assessments and peer surveys for developing data collection and research skills.

Junior Microsoft Expert School-Wide Adaptation Model

Kindergarten - 2nd Grade	3rd Grade	4th Grade	5th Grade	6th Grade
Word PowerPoint Sway	Word PowerPoint Sway **OneNote** **OneDrive** **Forms**	Word PowerPoint Sway OneNote OneDrive Forms **Teams**	Word PowerPoint Sway OneNote OneDrive Forms Teams **Outlook**	Word PowerPoint Sway OneNote OneDrive Forms Teams Outlook **Minecraft**
Memorize computer log-in			*Mentor K-2 students in Microsoft tools and technology*	

PRACTICE OUTCOMES

"I learned that all students wanted to be an expert in something, and that technology became the universal language." – Hollie Fisher

According to the Digital Teaching and Learning Grant Program (2021) School Dashboard, students at both schools reported an increase across digital competence for both digital literacy and technical skill in the graphs and charts. Troubleshooting and using multiple, credible resources had over 20% increases.

At Lakeside, Fisher's first class with JME needed differentiation. She had a range of students and expected that students at or above grade level would be most interested in the project. She first offered it as an extension students could complete if they were early finishers, at recess, or at home expecting only a handful of students to try it. "What I wasn't prepared for is that every one of my students would follow," Fisher says. Even her students that struggled academically happily engaged in learning and collaborating through the JME work.

By the end of the year, 23 of Fisher's 26 students earned the Expert certification. Since then, skills learned in the Canvas course are even more integrated into daily learning activities. After review from the Personalized Learning and Digital Learning departments in the district, the program has expanded to allow all elementary students to participate. In the 2022-2023 school year, 130 students at Lakeside Elementary achieved Junior Microsoft Expert status.

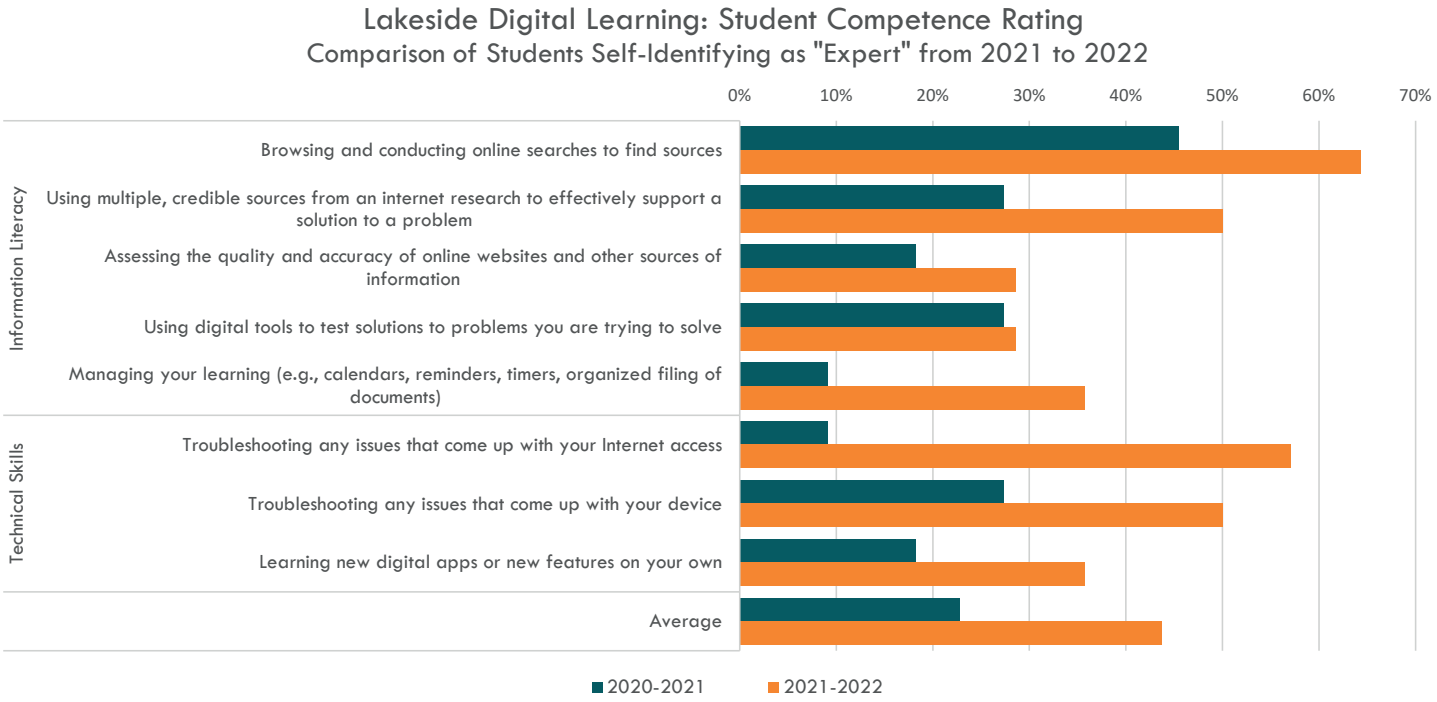
At Kay's Creek, Johnson used a pre and post-test with 5th grade students to assess growth. At the start of the year, students self-reported a range of responses including no experience, beginning proficiency, approaching proficiency, and proficient or master. While reliant on self-reporting and perception, by the end of the year most of the 83 students survived indicated they were either approaching proficiency or at the mastery level. In 2022-2023, Johnson had 96 of 105 students become certified. Of those 96, 50 went on to become Junior Microsoft Innovative Experts.

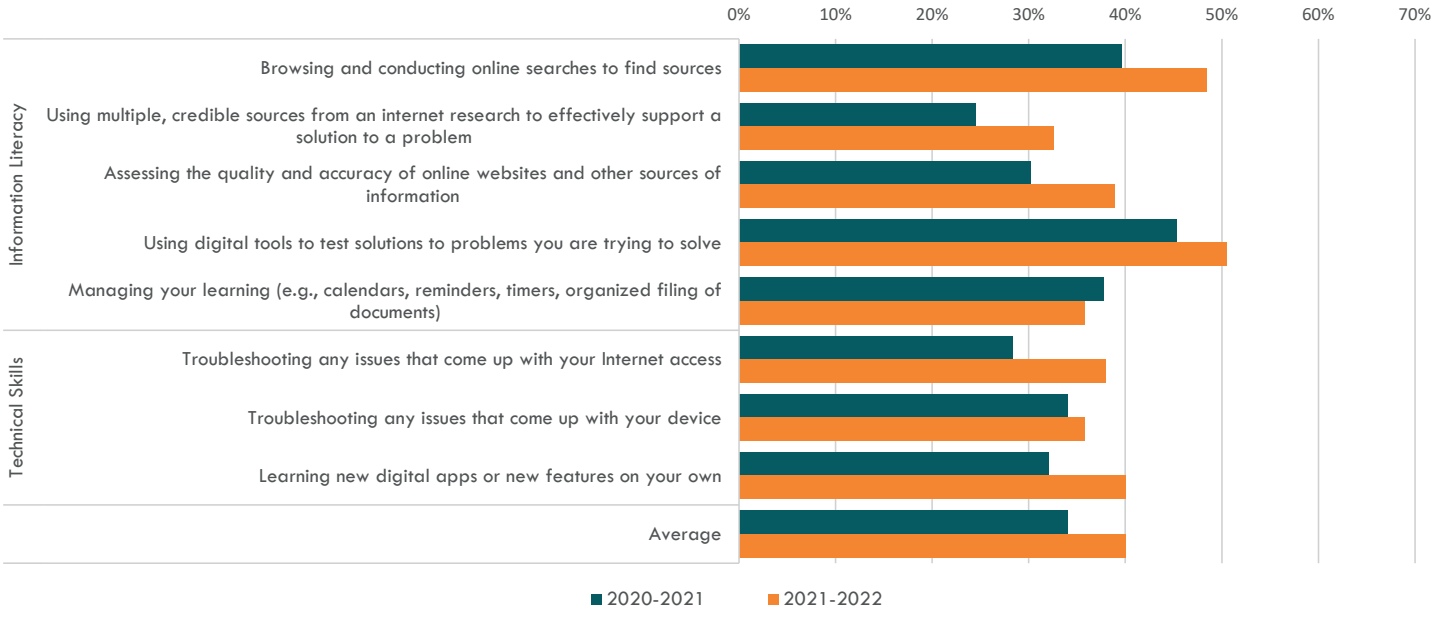
Results extend beyond the number of certifications. Parents report noticing changes in students' confidence and that students feel learning is relevant.

"She was so enthralled with her new skills that she would initiate her own projects at home."

"In the past it [anxiety] has crippled her. This program gives her a way to cope, communicate, and build something she can own and be proud of."

"She learned so many things that she can use throughout the next few years of school."





Data from the Digital Teaching and Learning Grant Program (2021) LEA Dashboards by School Students' Digital Learning Survey Results from 2020-2021 and 2021-2022.

PRACTICE REPLICATION

While the JME program was designed specifically to support use of Microsoft products, there is a possibility to create similar instruction with the devices and platforms available at a school. This would require a significant time investment and knowledgeable staff to develop courses and activities that are appropriate to build student capacity and integrate activities into coursework.

When considering replicating or adapting the Junior Microsoft Expert Program to a different school or district, there are several potential barriers to keep in mind. One major challenge is the availability of resources, including access to technology and trained personnel. Schools with limited resources may struggle to implement the program effectively, especially if they lack the necessary infrastructure to support it.

A potential barrier is the level of buy-in from teachers, administrators, and other stakeholders. Without strong support from these groups, the program may be difficult to implement and sustain over time. It is important to foster a sense of ownership and investment in the program. Conducting a needs assessment, identifying key stakeholders, and creating implementation and evaluation plans may be beneficial.

The Microsoft Expert Program is designed to be personalized and adapted to meet the unique needs of each school and district. Time and flexibility are required to plan and make ongoing adjustments. This is in keeping with nationally identified barriers to technology use in education. The Institute of Education Sciences report on educational technology for instruction in public schools found almost two-thirds of teachers report time to become familiar with and integrate new technologies as a moderate (43 percent) or large (22 percent) challenge (Gray & Lewis, 2021).

Scaling

Scaling this practice in a feeder pattern, district, or larger area requires a robust infrastructure to support the program, a well-trained and equipped teaching staff, and a clear plan for implementation, evaluation, and ongoing support and maintenance. Teacher training on platforms may be necessary before implementation could occur if the teaching community is not already familiar with the use of all tools for the classroom. Technology coaches, while not required, could help facilitate bringing a program like this to scale.

Limitations

Limitations to successful adaptation include a lack of resources, limited buy-in from key stakeholders, or cultural or logistical barriers that make implementation challenging. It is important to carefully consider these limitations before attempting to implement the program in a new context.

Materials are currently available to download as Microsoft resources for younger students. If the overall design of technological credentialling for a different platform is needed, materials may serve as a guide, but significant redesign would be necessary to fit available platforms and software. Additionally, software capabilities and tools change over time. It is necessary to consistently review and update materials.

UTAH LEADING

TECHNOLOGY CONCLUSION

The global EdTech market is estimated to reach over $400 billion by 2025 and the U.S. Bureau of Labor Statistics expects IT job openings to grow by 22.2% before 2030. Engaging students in highly adaptive, valuable skills within the technology field serves them well in supporting current coursework and future careers (Yelenevych, 2022). The Junior Microsoft Expert program is designed to teach elementary students essential knowledge and skills in using Microsoft tools and apps. Students can demonstrate their mastery through purposeful activities and tasks, and many become proficient within a single school year.

The program is similar to the Microsoft Showcase School and Innovation Educator Expert programs, which aim to improve leadership, teaching and learning, and student and staff environments. When considering replicating or adapting the JME program, it's important to assess resources, gain buy-in from stakeholders, foster a growth mindset culture, and create a plan for implementation and evaluation. There is promise in the potential of credentialing programs grounded in technology to foster digital literacy while supporting standards and instruction.

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ulead@schools.utah.gov

Utah State Board of Education
250 East 500 South | PO Box 144200
Salt Lake City, UT 84114-4200

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