



Year 2, Quarter 3 Report

The Context of SHAPE

The Schools and Higher Education Advancing Public Education (SHAPE) program began in 2012 with the goal of creating a collaborative model between public schools and universities to improve learning and teaching across the preschool to doctorate spectrum. The second round of SHAPE extends this goal with an emphasis on 21st century learning and teaching through the following initiatives: International Baccalaureate, Dual Language Immersion, Global Competence, Early Interventions, STEM, Arts Integration, Universal Design for Learning, Professional Learning Communities, and Digital Learning. Innovation through each of these initiatives is helping to shape the picture of what twenty-first century learning and teaching looks like from preschool through doctoral level education.

As SHAPE evolves, four hallmarks of twenty-first century learning in MCPS and at UM are surfacing. Each of those 21st century learning hallmarks and the SHAPE initiatives that support them are listed in the table below.

21 Century Learning Hallmarks	SHAPE Initiatives
Inquiry-based learning that helps solve problems in novel, creative ways	International Baccalaureate STEM Arts Integration Professional Learning Communities Blended Learning
Blended learning	Blended Learning STEM Universal Design for Learning Early Interventions
Expanded cognitive flexibility through dual language learning and global awareness	Dual Language Immersion Global Competence International Baccalaureate
Equity	Early Interventions Universal Design for Learning Professional Learning Communities Blended Learning International Baccalaureate Arts Integration

Initiative Updates



The International Baccalaureate initiative continues to show strong performance and growth. The IB Teaching and Learning program at UM is currently in its second year with its second cohort of candidates. Dr. Lucila Rudge, the principal investigator of the initiative, has also received requests from international teachers and from the University of Missouri at Kansas City to open up sections for in-service teachers who are seeking IB certification. Dr. Rudge has responded, putting together a proposal for an online IB program, which the Teaching and Learning faculty unanimously approved. Dr. Rudge has likewise worked with IB coordinators within the region to place current students in IB schools for their clinical work.

In addition to the work being done at the University, MCPS continues to expand its IB offerings at Lewis and Clark and Franklin Elementary Schools and Big Sky and Hellgate High Schools. To support teachers, MCPS partnered with the University to offer the IB Summer Institute in August. And, in order to continue to offer more IB courses at Big Sky and Hellgate High Schools MCPS has hired teachers certified in IB. Hellgate, for example, hired 3 IB teachers in English Language and Literature and 3 IB teacher in Math Studies. Both Lewis and Clark and Franklin Elementary Schools have been engaged in designing the parameters for students' artifacts of learning and developing their programs in inquiry. All told, 110 juniors and seniors are enrolled in IB courses at the high school level, and 750 students are enrolled in IB at the elementary school level.

Notably, Dr. Rudge and co-authored an article with graduate student Althea Gyde that is currently in-press entitled, "A Self-Study of Factors Affecting the Collaboration Between University and School Professionals," which will be published in the *International Journal of Teacher Education and Professional Development*. Rudge and Gyde have also submitted a proposal the American Educational Research Association conference for the 2018 annual meeting, and they are finishing another manuscript on the experiences of a pre-service IB science teacher.



The third quarter marks the first time *every* student at Paxson Elementary is participating in the dual language immersion program in Spanish and English (there are 464 students at Paxson). This has been possible through the hiring of 11 new teachers, aides, and administrators, who are, in fact, fluent in

Spanish. For students, this means that all K-2 students experience half of their school day in Spanish and half of their school day in English, while students in grades 3-5 experience one-third of their school day in Spanish and two-thirds of their school day in English.

As Paxson continues to expand its dual immersion program, MCPS and UM have put several supports in place. First, Paxson principal, Peter Halloran, attended a dual immersion symposium in Florida designed to help school administrators work through issues of recruitment, instructional policies, and planning. Second, 10 Paxson teachers worked together in August with Peter Halloran and UM professors Kate Brayko and Pablo Requena to collaboratively score students' oral assessments, noting trends and identifying instructional focus areas for the 2017-2018 academic year. A teacher from Washington Middle School attended this session to learn how teachers at Paxson are implementing and adjusting the dual immersion program as well as beginning to plan for the adoption and implementation for a similar program at Washington Middle School. Third, as in past summers, Paxson offered a Spanish language "boot camp" for students in grades 1-5 who are new to the school. Fourth, Dr. Pablo Requena at UM has created a new internship course for UM students who are taking Spanish classes to support K-5 students at Paxson. As part of their coursework, UM students enrolled in the internship course will serve as language coaches in a new after school Spanish program at Paxson.

As part of Dr. Brayko's ongoing research, she continues to collect data on students' oral assessments as well as data on their overall performance across subject areas. Likewise, she is in the process of preparing two conference presentation and an article on how pedagogical practices in foreign language classrooms are salient for all teachers. Coupled with this, Brayko is working with instructional coach Kammy Meyers on developing instructional rounds for teachers at Paxson so that they might learn from their colleagues across grade levels what content and pedagogies are working well, further offering an opportunity for teachers to reflect on their professional practice.



Activities in the Global Competence initiative in the third quarter encompassed ongoing outreach as well as a re-institution of the Global Pathways Summer Institute. As part of the Global Pathways program, first-year student at UM study abroad. Based on the requests of students and families, Jeanne Loftus, the lead of the Global Competence initiative, worked to foster relationships with three new institutions in New Zealand, Chile, and Ireland that will work with first-year UM students in the Global Pathways program.

One of the most exciting developments of the quarter was the rollout of the new Global Pathways Summer Institute in July. 7 high school students from Willard and Hellgate High

Schools, in collaboration with International Baccalaureate instructors from Hellgate High School (2) and Big Sky High School (1), participated. They worked with 14 UM faculty from political science, the biological sciences, sociology, geography, media arts, the Mansfield Library and the honors college to tackle global challenges and research that might help address them. Two advanced UM undergraduates likewise connected with the high school students about their experiences in the Global Leadership Initiative. In addition, 20 international students from China, Russia, India, and Brazil, who were studying at UM through a US State Department program focused on environmental issues, as well as several mid-career professionals who were also at UM as part of State Department programs, connected with the high school students from Willard and Hellgate. As part of the Institute, students crafted proposals to remedy real-world issues. Program participants noted that they gained leadership, planning, and organization skills, and others said they would do the program again and recommend it to their friends because of they were able to connect with so many people from around the world.



Activity in the STEM initiative spanned Project Lead the Way (PLTW) training and offerings oriented toward design and computational thinking. On August 7th and 8th, Dr. Lisa Blank led a two-day PLTW professional development workshop alongside side MCPS master teachers Kory Johnston, Crissy Pucko, and Kate Farnes for K-2 and grades 3-5 teachers. In all, 23 teachers and principals participated in the workshop to develop ways of developing curricula through active, problem-based projects that help students learn critical thinking, collaboration, and perseverance in addition to cross-disciplinary problem solving.

Computational thinking has likewise had a very robust quarter. The computer science teaching endorsement is now up and running at the University. Given the attention that this teaching minor has received at the Board of Public Education and the demand from K-12 superintendents around the state, we anticipate that this will become a well-subscribed endorsement. Extending from the Python course for teachers in June, two teachers, who attended the course at UM, began teaching a course entitled, “The Joy and Beauty of Computing Python,” in Bozeman. Likewise, all three MCPS middle schools have rolled out a “Computer Science for Innovators and Makers” course in which students learn targeted computer science concepts and skills to tackle student-identified interests and projects.

Finally, design thinking has figured prominently into third quarter activities. Sentinel High School has trained teachers in two workshops: Introduction to Engineering Design and Engineering Design and Development. In these courses, teachers are learning the conceptual frameworks that undergird engineering design and practice so that they can, in turn, help their students learn and apply them in real-world challenges. Dr. Blank is further developing opportunities for design thinking through spectrUM, SciNation, and the Salish/Pend d’Oreille

and Kootenai Culture Committees. Two mobile makerspace events were held as part of the Flathead Reservation summer 2017 powwows. Preliminary findings at the Arlee Esyapgeyni powwow (July 8) and the Standing Rock powwow in Elmo (July 15) suggest that the project's cultural making activities provided a powerful entry point into STEM learning. As an example, tribal participants spend an average of 22 minutes at the design making stations versus 5 minutes at the standard science stations. Males and females participated in equal numbers at both design stations, one of which offered beading and the other of which offered drum making. In total, there were 500 visitors to the design stations at the Arlee powwow and 200 visitors to the design stations at the Standing Rock powwow.



Beaded Station

Mobile Makerspace

Drum Station

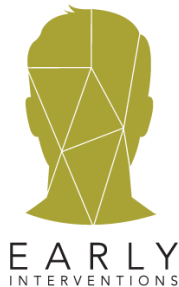


The activities undertaken in the third quarter under the Arts Integration initiative ranged from graduate coursework in the Creative Pulse program to SPARK! training for teachers to outreach and planning activities. Professor Karen Kaufmann again offered an intensive arts integration seminar to 34 in-service teachers from around the United States and from Poland through Creative Pulse. As part of this program, participants conduct field-based projects with their students to further experiment with arts integration across subject areas.

Professor Kaufmann further extended her outreach to Great Falls at the end of September where she presented introductory arts integration and creative dance workshops to teachers at the Arts as Our Voice: Montana Arts Education Summit. And, on 31 August, MCPS instructional coach, Seena Demmons, led a workshop for teaching artists on using mindfulness techniques and movement to reach students who would otherwise disengage from school.

Elementary and middle schools teachers from MCPS likewise participated in SPARK! trainings given by Randy Barron, a Kennedy Center Teaching Artist, on 25 September. Third and sixth grade teachers from across the district experienced a workshop focused on science through arts grounded in movement, such as demonstrating the water cycle through dance.

In addition to the activities in the third quarter, both UM and MCPS are currently preparing for regional arts integration conference that will be held at the University of Montana in June, 2018.



MCPS has expanded its programming in the Early Interventions initiative with the start of the 2017-2018 academic year. Rattlesnake Elementary has continued to use Parent Teacher Home Visits with 76 incoming kindergarten students and their families. Echoing the results from last year's inaugural year of the program, teachers affirmed that the connections with families before the school year began are important. One teacher noted, "I can make personal connections to certain things that I am teaching. I also have more empathy for certain students after observing their home life." Correspondingly, MCPS has instituted a program called "soft beginning" for all new kindergartners and their families. This program gradually increases kindergartners' time in school from a half-day to a full day over the course of a week. Finally, in collaboration with the Office of Public Instruction, teachers from Franklin Elementary developed a "Montana model" for Academic Parent Teacher Teams, which has been named, Family Academic Collaboration Teams (FACT). This model will be implemented in districts across the state, including at Franklin and Paxson Elementary Schools.

Dr. Trent Atkins has continued his work on his research study examining parents' and teachers' use of an early screener to better tailor services for four and five year-olds. During the third quarter, he worked directly with Mike Halligan to identify faith-based groups in Missoula to reach parents of young children who might benefit from the early screener and early literacy and numeracy services. Dr. Atkins has submitted a research proposal he developed in with graduate student Navin Mahabir to the Internal Review Board at UM, and he is awaiting approval to proceed with the study. Dr. Atkins is also training 55 pre-service teachers in how to identify and tailor tiered forms of instruction through the course, Academic Interventions, which is a foundational component of the elementary teacher education program at UM.



The third quarter for the Universal Design for Learning (UDL) initiative has been busy. Dr. Morgen Alwell, the UM lead for the initiative, has been providing training in UDL through her Inclusion and Collaboration course and professional development seminars at local schools. In the two sections of Inclusion and Collaboration offered in the second summer session and in the fall semester, Dr. Alwell has worked with 45 pre- and in-service teachers from around Montana. She has likewise been planning a faculty inquiry project on UDL with

Robert Squires and Marlene Zentz of UM Online. The project will take place at the University this fall and involves 9 faculty members from the mountain campus, Missoula College, and Bitterroot College. Two Missoula schools, Cold Springs Elementary and St. Joseph's Elementary, have similarly requested professional development seminars in UDL. In fact, Dr. Alwell will be conducting case study research at Cold Spring Elementary over the course of the academic year on UDL implementation. In MCPS more generally, teachers continue to expand their use Read and Write for Google and Bookshare, two Chromebook applications, with K-12 students. As UDL tools, Bookshare and Read and Write for Google have increased student access to text-based materials across subject areas, offering both visual and auditory instances of texts.



Much of the third quarter was spent conducting further background research on teacher education and professional development models using improvement science as well as priming MCPS teachers for a cultural shift to this end. As part of the research on the use of improvement science in teaching practices, David Levine, the SHAPE research fellow, and Dr. Adrea Lawrence have been working on a review of the extant research and developing journey maps, tracing the possible ways in which individuals can become teachers at UM and

through other colleges and universities in Montana. The literature review and journey maps are the basis for the interview framework, which we anticipate using in the spring of 2018 in talking with pre- and in-service teachers and principals.

To kick off the 2017-2018 academic year in MCPS, Ken Williams, a noted speaker on professional learning communities and their role in cultural change, spoke to all MCPS teachers and administrators in the Dennison Theatre at UM. Williams argued for K-12 school faculty and administrators to focus their attention single-mindedly on student outcomes. MCPS faculty and administrators examined quantitative data in English Language Arts and Math to examine

student outcomes and consider how teaching and learning practices might be adjusted to improve those outcomes.



The Montana Digital Academy spent the bulk of the third quarter planning for the a course on blended learning that will be offered in the spring semester of 2018 using data and insight from teacher/administrator teams from earlier iterations of the course. Likewise, MCPS has been preparing the Chromebook carts purchased in the second quarter for use in classrooms for the 2017-2018 academic year.

Within the elementary teacher education program at UM, faculty continue to experiment with blended courses to accommodate larger cohorts of students, and beaming in students in the Flathead Valley and Cut Bank to face-to-face classes to complete the 2+2 program begun at Flathead Valley Community College and Blackfeet Community College, respectively.