



# Australian and International Journal of Rural Education

## Elevating Local Knowledge in Curriculum, Conversation, and Community: Creating Connections Across Rural Montana

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### **Abstract**

In a time of fraying community and interpersonal relationships, rural school and community leaders are in search of research-based approaches to strengthen connections and sustain relationships among their students and community members. This article reports the findings from two studies (Moore, 2023; Weikert, 2022) documenting how and why, during the height of the pandemic, rural leaders from a community museum and local school came together to use local history and knowledge to design a museum exhibit and a K-12 curriculum about the pandemic and vaccines. The article describes the museum's place-conscious development process of the exhibit titled, *Shots Felt Round the World: Dr. Maurice Hilleman and the Montana Origins of the Fight Against Pandemics* to invite visitors to view the COVID-19 pandemic and vaccine development through local histories of infectious disease and healthcare. The article also describes how a curriculum for students in kindergarten through 12th grade (K-12) titled, *Hilleman & Vaccines: Connecting Culture to Scientific Curiosity* was created in tandem with the exhibition by the museum's Teacher Advisory Council to connect students to local history and knowledge to promote student learning through the integration of math, science, history, and critical thinking. Findings reveal that while the subject of vaccines is politically charged, the emphasis on local history and knowledge allowed both museum and K-12 audiences to find common ground, learn about the subject through a local lens, and strengthen school and community-school connections. The article concludes with recommendations for how rural schools and communities can use local knowledge to contribute to cross-community connections and vitality.

**Key Words:** *rural school, community, museum, place-conscious curriculum*

### **Introduction**

In the midst of today's complex, fragmenting, pandemic-ravaged world, community leaders around the globe are seeking meaningful ways to engage youth, strengthen education, build

connections, and grow their communities. Starting in October 2020, in response to the unfolding pandemic, community members of one rural town in Montana set out to do just that – to employ a place-conscious approach to education in order to strengthen relationships between the school and community.

This article brings together findings from two recent dissertation studies (Moore, 2023; Weikert, 2022), situated in the rural Montana community of Ekalaka. Together these studies document the process of how and why, during the height of the pandemic, rural leaders from a community museum and local school came together to use local history and knowledge to design a museum exhibit and a curriculum for students in kindergarten through twelfth grades (K-12) about the pandemic and vaccines. Moore's (2023) research examined the process by which a rural county museum, as a local anchor institution operating within rural social space (Reid et al., 2010), contributed to community vitality through the development of a place-conscious exhibit. Weikert's (2022) instrumental case study investigated the motivating reasons why stakeholders established and sustained a partnership to design and implement the K-12 curriculum associated with the museum exhibit. Together, these two rural community-centered studies from Montana offer key insights regarding how elevating local knowledge in curriculum, conversation and community can help to strengthen rural school and community connections.

### ***In the Context of a Global Pandemic***

At the time of these studies, communities around the world had been living through the COVID-19 pandemic for two years, persevering through challenges as local and state governments and school boards made decisions on health mandates and social policies. A report from the United States National Rural Health Association (2022) found that during this time, rural residents felt overwhelmed by information and misinformation about COVID-19 vaccines and often this became their reason for either not getting vaccinated (26%) or for not having their children vaccinated (31%). Overall, 71% of respondents indicated that their healthcare provider was the most trusted source of COVID-19 vaccination information and 14% indicated they wanted more information but did not have a trusted source to ask (National Rural Health Association, 2022). However, estimates indicate there is a severe shortage of rural health professionals (Hennessy, 2018). This means that people living in rural areas have a greater difficulty accessing basic services and health information, resulting in a decreased level of health literacy (Hennessy, 2018).

Due to the successful control and near-elimination of once dreaded infectious diseases, combined with public scepticism of health professionals, policymakers, and the pharmaceutical industry, the rate of United States parental refusal of vaccines has increased (Tulchinsky, 2018, p. 455). In these circumstances, experts suggest that in order to build vaccine confidence and increase vaccination rates amidst this shortage of healthcare professionals, public and private sectors must work together (Orenstein, 2019).

While access to quality medical care, rural museums, and rural schools may seem worlds apart, in recent decades, museums have demonstrated the ability to contribute to education and healthcare by connecting stories of past diseases to present topics of health and wellness (Camic & Chatterjee, 2013). Thus, the local museum in Ekalaka, Carter County Museum, set out to develop an exhibition and K-12 curriculum which utilized a place-conscious approach (Azano et al., 2021) to invite community members to view the COVID-19 pandemic and vaccine development through local histories of infectious disease and healthcare. The museum sought to focus on a clear connection to the biography of Dr. Maurice Hilleman who was born and raised in the region and became the most prolific vaccine scientist of the 20th century (Moore, 2023). Through the development of this two-part educational approach rooted in place, the Carter County Museum sought to position itself as a supportive partner in fostering a sense of connection and community (Gray & Graham, 2007).

## Background Literature

### ***Place-Conscious Education, Community Anchors, and Institutional Leadership***

Place-conscious education (Greenwood, 2013) recognizes that connecting curriculum to place can elevate individuals' understandings of, and connections with, the local community, the global context, and help reveal the roles power and privilege play in teaching and learning. In this regard, rural contexts can be rich environments for place-conscious education. A curriculum which includes local history, knowledge, and expertise – and includes projects rooted in place – can enrich both teaching and learning (Azano et al., 2021). For example, Avery (2013) describes how the ideas of local ecological knowledge (Olsson & Folke, 2001) and Indigenous human ecological knowledge (Kassam, 2009) are important aspects of local rural knowledge and argues that by recognizing local rural knowledge as a valid way of knowing, learners can connect personal experiences to global concepts in science and other subject areas. Furthermore, findings from science education research suggest that the selection of pedagogical strategies which value and use local rural knowledge have the potential to enhance students' access, engagement, and achievement in science (Avery, 2013).

Experts recommend the use of connections to place as a way to increase students' academic achievement, promote stronger connections to their community, expand their appreciation for the natural world, and foster a heightened commitment to serving as active, contributing citizens (e.g., Sobel, 2013). These experts also recommend the development of partnerships as an important way to engage students in real-world projects in the local environment and the community (Sobel, 2013). In this way, partnerships between schools and their communities “*promote the education of children, the well-being of families, and the vitality of communities*” (Casto, 2016, p. 139). A place-conscious approach to education, which is grounded in community partnerships and connects students to a local version of a global issue, can help students recognize their potential to tackle local issues, including those related to health and safety, as part of the world community (Vander Ark et al., 2020).

Museums, and small museums in particular, have the potential to educate in powerful ways, and help students develop close connections to their community (Davis, 2007). With collections and programs of small museums often focused on place, “*members of the community come to know and cherish the place in which they live*” (Gray & Graham, 2007, p. 311). With this understanding, museums function as community anchor institutions because they hold objects and histories that shape the community's identities (Davis, 2007) and safeguard memories for future generations. These histories can help to create “*a web of understanding between people and the environment, between people and their neighbors, between people and their history*” (Davis, 2007, p. 70).

Leading researchers in the United States have called for museums to bridge the cultural sector with the experiences and the needs of its communities and audiences during the COVID-19 pandemic and beyond (Cohen, 2021). Experts have also identified aspects of individual well-being which can be addressed through well-designed museum experiences (Falk, 2022).

### ***Theoretical Framework***

This article looks at the findings from two studies which used the communities of practice framework as a lens to understand partnerships and collaborations. Wenger (1998) describes three criteria for membership in communities of practice: mutual engagement, a joint enterprise, and a shared repertoire of resources. In communities of practice, members share a mutual interest in a domain and a desire to engage in shared activities and discussions, often informally defined and negotiated. Through these relationships, a community of practice develops a repertoire of resources, words, ways of doing things, or common experiences of the group. In this understanding, communities are not necessarily related to one's geographical location or place. Instead, this framework describes how people interact and learn together. The

communities of practice concept has influenced theory and practice in many domains and offers a theoretical framework to understand the systems that support relationships in local communities and partnerships (Wenger, et al., 2011).

The communities of practice framework has been used by researchers and practitioners working in public school systems in the United States to better understand peer-to-peer professional development activities (Wenger, et al., 2011). This framework has also informed educational research outside of the classroom, including museum education, to understand how museum educators and teachers develop and sustain partnerships despite perceived barriers (e.g., Kisiel, 2016; Tytler et al., 2016). Furthermore, practitioners continue to add to the application of the communities of practice framework, offering best practices for communities of practice including the need for both individuals and the collective to benefit from communities of practice activities and fostering a sense of belonging and achievement within the members (Kastens & Manduca, 2018). In the two studies brought together in this article, communities of practice provided a framework to understand how and why rural leaders from a community museum and the local school came together to achieve a mutual goal; this article's findings provide further examples of thriving communities of practice.

## Research Context

### ***K-12 Public Education in the United States***

In the United States, individual states provide general supervision over their public school systems, including curriculum and compulsory attendance. Students in Montana are required to attend school from age 7 to 16, with the public school system providing free education to all students ages 5-19. Like other states, Montana's Board of Public Education adopts general standards, called *Content and Performance Standards*, and Montana's Office of Public Instruction is tasked with implementing those standards. Local school boards then adopt a K-12 curriculum that defines how each standard will be met and implemented in kindergarten (ages 5-6) through twelfth grade (ages 17-19) regarding the activities, lessons, local assessments, and pacing. Although Montana's *Content and Performance Standards* seem quite specific, they do allow for place-conscious instruction within the Standards. The Standards define 'what' is to be taught, and the teacher in the classroom is very much in charge of the 'how'.

### ***A Rural Community: Ekalaka, Montana, United States***

The two studies reported in this article were situated in Montana, which is the fourth largest state in United States, yet is the third least populated by density, with an average of only 6.86 people per square mile (2.65 per square kilometre) (United States Census Bureau, 2020b). With just seven cities over 10,000 residents, and only one with more than 100,000 (United States Census Bureau, 2020c), Montana is known for its vast, rolling landscapes dotted by small towns and long distances in between population centers. The state has more rural schools (74%) and more small rural school districts (94.7%) than any other state, with one in three Montana public school students (N=48,200) enrolled in a rural school district (Showalter et al., 2019, p. 119).

The rural community at the heart of these two studies is Ekalaka (pop. 395) which is located in the southeastern corner of Montana and is an example of one of Montana's thriving rural communities. The town is situated in Carter County which spans 3,348 square miles (8,671 square kms). The county has a strong ranching industry including cow-calf and sheep livestock operations. Ekalaka is geographically isolated from major (and minor) metropolitan areas with few paved roads and limited access to other towns in inclement weather. Yet, Carter County was the second fastest growing county in Montana following the more populous Gallatin County, which is home to the city of Bozeman and the largest university in Montana (United States Census Bureau, 2020a, 2020c).

Ekalaka is home to Ekalaka Public Schools which had 133 students in grades K-12 in the 2022-2023 school year, with 90 students in Ekalaka Elementary and 43 students in Carter County High School, the county's only school for students in ninth through twelfth grades. The community is also home to the Carter County Museum which was originally located in the basement of the old Carter County High School, forming the foundation of this enduring partnership more than 85 years ago. The museum's location in the school also fostered relationships between the teachers and the museum. Most notably, the second director of the museum, serving from 1946-2006, was also the county's high school science teacher during this time. This long history has resulted in multiple partnership activities with generations of teachers and museum stakeholders.

The current commitment to developing place-conscious curricula began in 2013 when local teachers and museum stakeholders came together to develop lessons to teach growth curves through the measurement of cattle and dinosaur femurs. The success of this project formalized the museum's Teacher Advisory Council, which is composed of two teachers from the high school and one from the elementary school. The Teacher Advisory Council exists as a stand-alone committee within the structure of the museum. Participation is on a volunteer basis and the museum's director, in consultation with the rest of the Teacher Advisory Council, invites new members to participate. In the years that followed the first curriculum, the Teacher Advisory Council, in concert with the Carter County Museum staff and other partners, developed two more large curriculum units, custom programs, and provided multiple class visits and field trips, engaging multiple stakeholders in ongoing place-conscious education activities. This provided the foundation for the collaboration between the staff of the Carter County Museum, local healthcare providers, and members of the Teacher Advisory Council in creating the *Hilleman & Vaccines* (Carroll, et al. 2021) companion curriculum to the exhibit *Shots Felt Round the World: Dr. Maurice Hilleman and the Montana Origins of the Fight Against Pandemics*.

### **Exhibit Development: Designing for Connection to the Local Community and Building Connections**

In light of the national call for museums to offer an educational bridge for their communities and audiences during the COVID-19 pandemic and beyond (Cohen, 2021), the Carter County Museum elected to participate in a national research initiative, led by the Center for the Future of Museums, that used a large-scale online survey to analyse the experiences, needs, and behaviours of a representative sample of the U. S. population. This included contacts from more than 650 cultural organizations around the country. Data gathered from 107 respondents in relation to the Carter County Museum indicated a clear desire for the museum to: (a) increase awareness of COVID-19 safety practices and vaccinations, (b) reflect on history and connecting the past to the present; and (c) educate children. These data revealed that local community members in the midst of the pandemic, the community was looking to the museum as a resource to address the challenges (Moore, 2023).

In response, the staff of the Carter County Museum joined together with local health care providers and virologists at Montana State University to create an exhibition grounded in place and supportive of individual well-being. The exhibit, *Shots Felt Round the World: Dr. Maurice Hilleman and the Montana Origins of the Fight Against Pandemics*, presented critical information about the COVID-19 pandemic and vaccines through a lens that included localized reflection on past pandemics and vaccine history (Moore, 2023). This exhibit, and its companion curriculum, utilized collections of photographs from Dr. Hilleman's life provided by the Museum of the Rockies and local histories from the region held by the Carter County Museum.

In its final format, the exhibition consisted of 14 retractable banners and two additional banners specific to the local community and gave explicit attention to the historicization of the relationships between people, infectious diseases, and medical practice. By weaving local pandemic histories as well as the biography of Dr. Hilleman through the exhibition, the Carter



County Museum elevated local knowledge to the level of essential civic knowledge (Moore, 2023).

In the second phase of the exhibition project, the Carter County Museum partnered with other Montana communities and their local anchor institutions (the community healthcare organization, museum, and/or library) to bring the exhibition to other locations. To create the critical connections to place, the Carter County Museum worked in consultation with people and archives from each host community to create two custom exhibit panels for each location to which the exhibition traveled, showcasing local histories of healthcare and infectious disease (Figure 1). This approach gave each community the opportunity to speak its history for itself, which is an important component of working with rural communities (Moore, 2023).

**Figure 1: Exhibit on Display in Lewiston, Montana (Image Courtesy OneHealth Lewistown, 2022)**



### **Curriculum Development: Elevating the Importance of Place**

The members of the exhibition design team also recognized that they had a unique opportunity to further the reach of their work by connecting the content to Montana’s *Content and Performance Standards* and local curriculum through a K-12 companion curriculum. Thus, museum staff, in partnership with the Carter County Museum’s Teacher Advisory Council, developed the K-12 curriculum titled, *Hilleman & Vaccines: Connecting Culture to Scientific Curiosity* (Carroll, et al., 2021). This curriculum used a powerful, place-conscious approach by presenting information through the inspiring life story of Dr. Maurice Hilleman – a rural Montanan who grew up to develop a variety of vaccines, including eight of the 14 commonly given to children in the United States today (Tulchinsky, 2018).

This group chose a place-conscious approach to teach about the process of scientific inquiry and vaccine development, infusing the curriculum with local histories and the life of Dr. Hilleman. They intentionally incorporated local information relevant to the global pandemic to expand student understanding of scientific concepts and also help students realize they have real potential to address issues. To accomplish this task and ensure the accuracy of all the science and math lessons, the team engaged with multiple expert organizations and partners (Kadoyama, 2018) including:

- The Carter County Museum supplied the background material for the curriculum on Hilleman’s life, local and other Montana histories;
- The Museum of the Rockies in Bozeman provided material from the Hilleman family collection for integration into the curriculum;
- The community hospital, Dahl Memorial, provided the focus on understanding vaccines based on what they had heard from their patients;

- The Montana Office of Public Instruction granted the inclusion of two Indian Education for All lessons designed for middle school audiences, which addressed pandemics and indigenous tribes;
- The University of Montana School of Journalism granted the use of their series on COVID-19 and tribal nations in Montana; and
- Professors in History and Vaccinology at Montana State University and the Vaccine Makers Project Team at the Children’s Hospital of Philadelphia provided expert review of the curriculum.

### ***Sharing the Exhibition and Curriculum with Ekalaka and Montana***

The exhibit opened in Ekalaka in May 2021 with a virtual event that included a tour of the exhibit from the director of the Carter County Museum, speeches by members of the Teacher Advisory Council who had created the lessons for the companion curriculum, and a guest lecture by Zahava D. Doering, co-director of the Smithsonian *Vaccines and US* project, of which *Shots Felt ‘Round the World* and *Hilleman & Vaccines* became a part. In November of the same year, a second copy of the exhibit was installed at Dahl Memorial Hospital in Ekalaka, Montana in celebration of the United States National Rural Health Day. During its time in Ekalaka (pop. 395), the exhibit drew over 3,000 people.

In 2022, the statewide rollout of this project across Montana included: (a) the exhibition, which embedded public health within cultural and historical contexts in each community; (b) a documentary film showing, which facilitated discussions between audiences and local healthcare providers; and (c) the K-12 curriculum, which expanded student understanding of scientific concepts related to vaccine development and infectious diseases (Moore, 2023). Supported by a grant from Humanities Montana, the exhibit was on display in Chinook, MT from February to March 2022; Miles City, MT in April; summer 2022 in Billings, MT; fall 2022 in Lewistown; winter 2022-23 in Great Falls, MT; and spring 2023 in Hardin, MT. A total of 23,536 people saw the exhibition during its tour of these Montana communities.

### **Research Methodology**

In order to explore the outcomes of viewing the traveling exhibition, Moore’s dissertation research (2023) deployed a survey to assess visitors’ reasons for attending the exhibition and their learning as a result. During the exhibit’s state-wide tour, 29 people completed this survey, which used a Likert scale of 0 to 5 to measure respondent’s pre/post level of understanding of topics including infectious diseases, vaccines, Montana history, local healthcare, and local history of infectious disease before and after viewing the exhibition. Respondents also had the opportunity to answer demographic data, which revealed that a majority of respondents identified as female (77%), Caucasian (80%), and between the ages of 26-35 (35%) (Moore, 2023).

Moore also investigated the outcomes of the K-12 curriculum through examination of teacher reflections recorded during community presentations and data collected from the teachers during the pilot of the *Hilleman & Vaccines* curriculum in Ekalaka, Montana. These data, collected in the spring of 2020, included copies of student submitted assignments from the elementary and high school levels with student names redacted to protect privacy. These data included 13 documents from students in the third grade at Ekalaka Elementary, which represented five of the lessons, and 16 documents from math students at the high school level (9-12 grade at Carter County High School), representing three of the lessons.

Given Moore’s (2023) focus on the outcomes of the exhibition and curriculum, Weikert’s dissertation research (2022), under full approval of the Montana State University Institutional Review Board and the Carter County Geological Society (CCGS) Board of Directors, implemented a complementary instrumental case study to document key stakeholders’ reasons for

participating and supporting the *Hilleman & Vaccines* curriculum. Weikert used semi-structured interviews with nine participants including teachers and museum stakeholders, and collected field notes, documents, and audiovisual digital materials. To answer the research questions with accuracy and authenticity, Weikert's data analysis included analytical memoing and multiple cycles of open and axial coding to derive themes and categories. This non-experimental method added to Moore's research by building an understanding of complex and evolving relationships and processes between these stakeholders, their two institutions, and their community recognizing that community anchor institutions, including museums and schools, are deeply connected to their communities (Institute of Museum and Library Services, 2016). Weikert's study was designed to be respectful of, and responsive to, the distinctive relationships and aspects of one rural community, in order to generate findings that could be applied to other contexts.

## Findings

The findings presented in this article are drawn from Moore (2023) and Weikert's (2022) dissertations. Together these findings provide a more complete understanding of how and why rural leaders from a community museum and the local school came together to create a place-based curriculum for their community focused on the pandemic and vaccines. The findings revealed that through a focus on local history and knowledge, both museum and K-12 audiences found common ground, learned about the subject through a local lens, and strengthened school and community school connections. While the subject of vaccines remains politically charged in the United States, the findings demonstrated how utilizing an innovative, place-conscious approach could foster hope and resilience even during a time of division and fear. These studies provide both theoretical principles and findings for practitioners, adding to documented examples of thriving communities of practice.

### ***The Power of Place to Create Common Ground***

Findings from Moore's (2023) study revealed that connections to local histories in the exhibit design was key to helping audiences find common ground to learn about the subject. By relating first-person accounts from newspapers and community oral histories, the exhibit connected the history of the local community and state, and the history of vaccines and pandemic disease, with a goal of enhancing "*public understanding of the role viruses play in human health, a key contributor toward enhancing the use of vaccines to prevent infections*" (Diamond et. al., 2016, p. 14). An example of creating common ground was seen through sharing the histories of members of the Carter County community regarding the 1918-1919 pandemic in the exhibition. These were particularly poignant, as viewers recognized their ancestors while reading about their experiences and contemporary coverage of the disease in the local newspaper (Moore, 2023).

A second key to the success of the exhibition was highlighting the person-place connections of the content. The biographical thread of Dr. Maurice Hilleman tied pandemic history, inequality, and scientific discovery and innovation together in a story that appealed particularly to a rural Montana audience (Moore, 2023). For example, Hilleman was born and raised in the rural ranching community of Miles City and went to college in Bozeman, MT. During his birth, his twin died, and his mother passed away a short while after due to illness. This contributed to Hilleman's lifelong battle to eradicate the world of childhood diseases. Today, the vaccines he created in pursuit of this quest save more than 4 million lives per year worldwide (Moore, 2023, p. 187).

This exhibition's companion K-12 curriculum titled, *Hilleman & Vaccines: Connecting Culture to Scientific Curiosity* (Carroll, et al., 2021), used a place-conscious approach to teach about the process of scientific inquiry and vaccine development centered around local histories and the life of Dr. Hilleman. In these lessons, the Teacher Advisory Council used local stories relevant to the global pandemic to help students realize that their health and safety are deeply connected to



their place, as well as their community. In Weikert's (2022) study, members of the Teacher Advisory Council described their commitment to personalizing the student learning experience and fostering students' interests in learning by providing examples of how they made the curriculum relevant to students' lives. For example, knowing that it is a common practice to isolate recently purchased cattle from the other cattle on a ranch enabled the teachers on the Teacher Advisory Council to generate lessons and monitor discussions with students about the practice of quarantine with contagious diseases among humans. There were also instances where a student's mother, who was a veterinarian, offered to help deliver a lesson. Speaking to local customs and culture helped teachers establish a community of learning with their students.

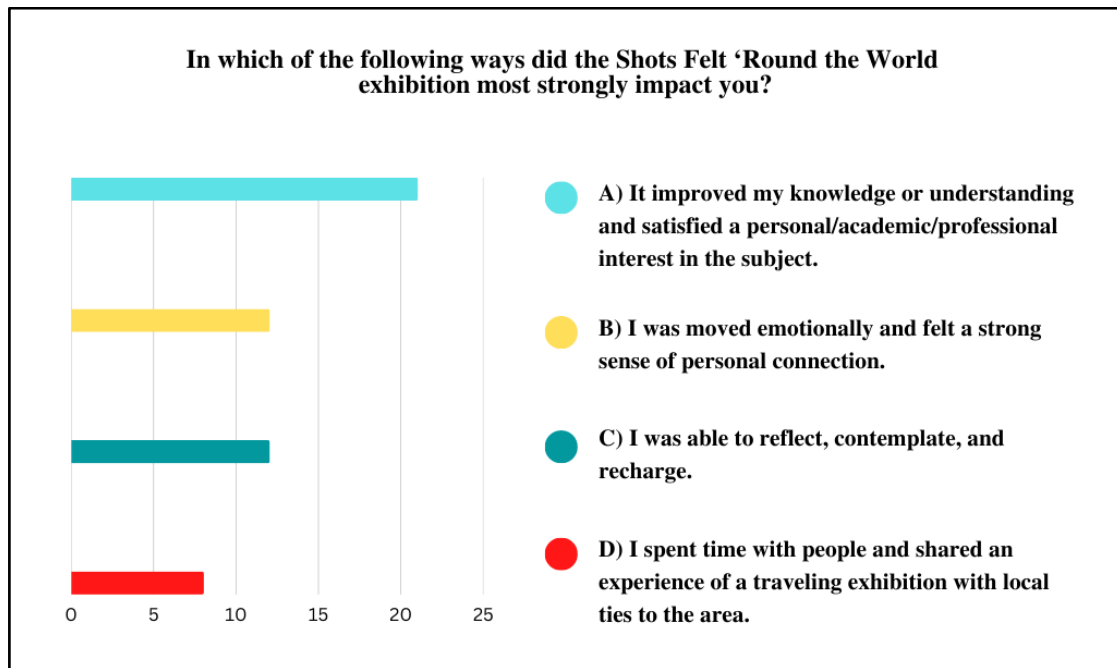
The connection between the local museum and the local school district was strengthened by adults and youth who visited the museum. Children became acquainted with exhibits that were interesting to them or that had a connection to where they live. For example, children noticed that the arrowheads or fossils they found on their farm or ranch looked similar to what was on display. Sometimes they noticed that their relatives had donated items to the museum that had been found on their farm or ranch or a location near their home. There were instances where an animal in the museum's taxidermy collection was like an animal they recognised as they travelled to and from school or as they worked on their ranch. Students were pleased to show their teachers and fellow classmates items which had a connection to their family and the place they call home. Educators in the area who listened to and honoured those conversations were well-suited to integrate museum content into their lessons. Additional lesson opportunities often arose as students learned that their teacher was deeply interested in where they lived. Students and educators, both at the school and the museum, thrived in this setting of shared trust. One educator who piloted the Hilleman curriculum reported that the connections to their sense of place – peppered by each student's experiences during the pandemic – resulted in student and teacher engagement that were among the most powerful in their 25 years of teaching. They candidly avowed, *"I mean, it was by far the most meaningful, the most meaningful, time in my career"* (Weikert, 2022, p.143).

### ***Learning Through a Local Lens: Exhibition Outcomes***

During the exhibit's state-wide tour, Moore's (2023) exhibition survey findings revealed that participants' pre-exhibit knowledge of exhibition topics ranged from "none" to "a little." However, a majority of respondents indicated that after attending the exhibit, their level of understanding of the topics of infectious diseases, vaccines, Montana history, local healthcare and local history of infectious disease all increased to "a lot" and "a great deal." These findings suggest that the exhibit was achieving its goal of increasing individuals' understanding through the use of a place-conscious perspective (Moore, 2023).

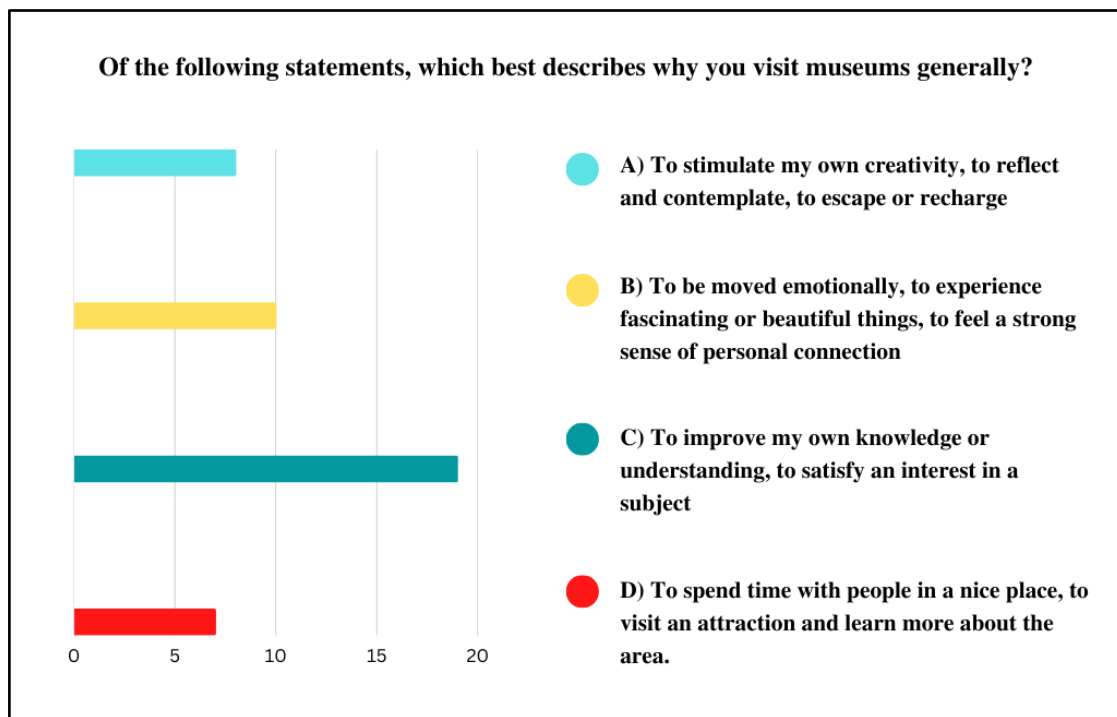
Two questions, inspired by Falk (2022), were specifically designed to assess the effect of the exhibition, and of museums in general, on areas of the respondent's well-being. Results from Moore's study (2023) (Figure 2) revealed that respondents overwhelmingly indicated they felt the experience had increased their understanding about the issues.

**Figure 2: Impact of Viewing the Exhibit (Moore, 2023)**



Moore’s study (2023) also found that the majority of respondents found the exhibit satisfied aspects of intellectual well-being (Figure 3).

**Figure 3: Impact of Museum Visits (Moore, 2023)**



**Learning Through a Local Lens: Outcomes of a Place-Conscious Curriculum**

Moore’s (2023) analysis of data collected from participants regarding their experience with the *Hilleman & Vaccines* curriculum suggests several positive outcomes for both teachers and their students. The teachers reported that the curriculum helped increase student engagement and broadened their pedagogical approach. For example, when reflecting on their involvement in the curriculum project, one teacher shared:

*But what really motivated me to want to work with the museum was what my students would gain from this partnership. This project really forced me to broaden my approach beyond my narrow focus of the textbook. Our museum has become one of the best hubs for learning in our community, and I am just excited to be a small part of that!* (Participant in Moore, 2023, p. 201).

Another teacher described how this curriculum provided an avenue for increased student engagement in their classroom:

*We have had great discussions about what it means to be “vaccine eligible”, and we have had these conversations while just this week, one vaccine was approved for ages 12-15. What an incredible time to be talking about Hilleman’s contributions to immunization* (Participant in Moore, 2023, p. 207).

In regard to outcomes for the students who engaged with the curriculum, Moore (2023) found: (a) increased content interest and knowledge; and (b) widened views of self, future, and larger world. To illustrate the way the curriculum supported the development of students’ content knowledge, one teacher shared:

*Students learn a ton about macromolecules, but this curriculum gives the perfect context to reinforce those lessons and to connect students with more studies and more data. Collaborating with the math teacher helps students understand the data better and illuminates just how important math is to science.* (Participant in Moore, 2023, p. 208).

In terms of the curriculum’s impact on students’ views of self, future, and larger world, teachers reported that the inclusion of stories about Hilleman’s childhood in southeast Montana enabled local students to connect common aspects of their experience with Hilleman’s rural background. For example, several high school students gave examples of applying techniques in quarantining and vaccinating before adding new cattle to herds at their ranches (Moore, 2023).

The Teacher Advisory Committee also shared examples of elementary student work that included students’ drawings of themselves as doctors and their interest in contributing to public health. For example, one elementary student wrote:

*I want to find a cure for lung cancer [...]no one should deserve to go through that type of pain. I’m gonna try to learn how to become a scientist [...] it might take a couple years, but I will do it.* (Participant in Moore, 2023, pp. 208-209).

In regard to the overall outcomes of the lessons, an elementary teacher shared:

*My students have been very engaged in this unit. They love the hands-on activities, and I am truly amazed at how much material they are retaining ... but mostly the important concept that THEY can make a difference in the world just like Maurice Hilleman.* (Participant in Moore, 2023, p. 207-208).

### **Strengthening Rural School and Community Connections**

In an effort to understand Ekalaka community members’ motivation for working to create the exhibit and K-12 curriculum, Weikert’s study (2022) documented key stakeholders’ reasons for participating and supporting the work. Findings revealed that with local students as the focus of the development of the exhibit and curriculum, community members offered three independent, yet closely related reasons that energized their contributions: (a) their vision for the whole community, (b) their beliefs about the importance of personal contributions, and (c) their value of place. Stakeholders also described their commitment to the long horizon – a long-term dedication to living and working together – and building resilience amidst challenges, loss, and frustration. Participants demonstrated that through individual passions and interest, as well as their desires to learn and grow as leaders, they were stakeholders who served as catalysts for

change. These community members emphasized that this sense of personal agency was a vital element for a thriving rural community given the smaller population size. In more populated areas, a broad diffusion of responsibility can reduce an individual's tendency to take action, but in smaller, rural communities the responsibility for action and outcomes is more personal (Nowell & Boyd, 2014).

Teachers and museum stakeholders also connected their motivating reasons for their commitment to: preserving and sharing the stories of their community; promoting the area as an attractive place to live; and instilling in others a dedication to protecting the place they live and work. At the same time, stakeholders also expressed a commitment to challenging deficit views of rural areas, by sharing the assets and opportunities of their place as an example of the strengths and capacities of rural communities (Weikert, 2022). Stakeholders universally described this partnership as *relationships between people*, as opposed to a formal *relationship between institutions* of the museum and the school. One stakeholder described the reciprocal nature of this partnership as: “*Partnership is, of course, a relationship among people, where everyone brings something to the table and works together toward a common goal*” (Participant in Weikert, 2022, p.108).

These relationships also endured over time. Weikert (2022) noted that all the members of the original Teacher Advisory Committee had changed their professional roles, taken leaves of absence, or permanently left their formal paid positions. Yet, all of these stakeholders remained active in this partnership. In this context, these individuals' continued involvement illustrated the relational nature of this partnership in contrast to partnerships based solely on formal transactions designed to support one-time projects. Weikert's (2022) findings revealed that the interactions between the members of the Carter County Museum and the educators from the local school were most appropriately described as a *relational partnership*. Understanding the core nature of this partnership as relational rather than transactional elevated the pivotal roles of respect, reciprocity, and social connections within the partnership activities between the museum and the school. It also highlights the limitations of transactional partnerships, which tend to rely on impersonal interactions between individuals formally representing institutions.

## Discussion

Together, the findings from Moore (2023) and Weikert (2022) provide insight and inspiration for rural community leaders, who even in the midst of adverse circumstances such as those of the pandemic, can use local history and knowledge to build common ground, enhance student learning, and foster community vitality. These two studies highlight the powerful impact possible through cross-community connections and offer three principles (Weikert, 2022) and four practices (Moore, 2023) for ways in which rural schools and community organizations can work together to establish, grow, and sustain place-conscious relational partnerships and curriculum.

### ***Elevating Local Knowledge: Place-Conscious Principles***

**Establish Shared Respect.** Powerful relational partnerships are “*grown through a process of mutuality and reciprocity, and based on relational ethics, authenticity, and solidarity*” (Cash & Moffitt, 2021, p.1). Community anchor institutions, such as rural museums, can partner with their local K-12 teachers to support meaningful place-based educational experiences. Given that rural teachers' lives continuously intersect with those of their students in multiple ways, both within and beyond the classroom, teachers can be a tremendous resource for community anchor institutions.

**Develop a Shared Vision.** Given the variety of reasons why rural community stakeholders and teachers choose to participate in partnership activities, it is critical to develop a shared vision which includes the whole community, highlights the importance of place, and values individual contributions.



**Work Toward Shared Solutions.** The participants in this project described their work on the museum exhibit and the K-12 curriculum as being both place-conscious and solution-focused. In this regard, the work described in this article is a clear example of how new ideas can be developed with rural communities to build and extend previous positive outcomes (White & Downey, 2021).

### ***Elevating Local Knowledge: Place-Conscious Practices***

**Establish a Teacher Advisory Council.** In the United States, all Career and Technical Education programs are required to seek the input of a Local Advisory Committee, composed of a variety of community stakeholders which may include parents, business owners, and teachers (Montana Office of Public Instruction, 2020). In Ekalaka, the museum director and members of the curatorial staff specifically invited teachers from elementary, middle school, and high school to form the Teacher Advisory Council. This choice helped to ensure maximal student participation in museum programs and best serve as a resource for classroom subjects that may benefit from access to museum collections or connecting subjects of world history (like infectious diseases) to local history. The Teacher Advisory Council also chose to involve other partners on a case-by-case basis, as in the example of bringing in experts on local healthcare and vaccinology to consult on the *Hilleman & Vaccines* curriculum.

**Intentionally Build Relational Partnerships.** In defining and describing relational partnerships, Weikert (2023) emphasized that these partnerships are grounded in social relationships. This differs from transactional partnerships with less personal interactions between individuals formally representing institutions based on one-time projects outlined by memorandums of understanding or formal agreements. Intertwined with how stakeholders understood community, relational partnerships are built over time on respect and reciprocity, fostering a sense of belonging, and a long-term dedication to living and working together, building resilience through challenges, loss, and frustration. Relational partnerships then require the development of social relationships over time, aligning with the critical role that relationships play in everyday rural life.

**Provide Professional Development.** In order to support the development of a rigorous place-conscious curriculum and effective programming, all members of the Teacher Advisory Council needed to know the local and state educational standards as well as the museum's mission statement. Thus, the Teacher Advisory Council should develop goals and a mission which will prioritize place-conscious curricula and a strong relational partnership with both institutions. In the case of the Carter County Museum, in addition to large curriculum units, the museum also worked together with the Teacher Advisory Council to discuss ways in which the museum osteology collections could be used by students during anatomy lessons and digital scans of fossils could be viewed online or 3D printed in their classrooms.

**Share With the Community.** A final recommendation for practice is to develop opportunities for members of the Teacher Advisory Council to share their collaborative work at local, state, and regional education conferences. In this way, members of the school and the museum can share programs, highlight their successes, and introduce their Teacher Advisory Council model so that other schools and museums may develop and refine their own relational partnerships. Members of the Teacher Advisory Council can also present their work alongside museum partners to museum membership and community, through written communication (newsletters, social media posts), or public forums. These efforts strengthen relationships, foster community support, instill in others a dedication to protecting the place they live and work, and challenge deficit views of rural areas by sharing the assets and opportunities of their place. For example, the Teacher Advisory Council participated in the Virtual Opening of *Shots Felt 'Round the World* exhibition in Ekalaka, Montana. This special program aired live on YouTube and Facebook and featured experts involved in the partnership, including the members of the

Teacher Advisory Council, who shared information on how they constructed the lessons and their impact in the classroom pilots. The film now lives on the virtual version of the exhibition, which is accessible through Google Streetview and has been viewed 44,000 times (<https://cartercountymuseum.org/shots-felt-round-the-world>).

## Conclusion

The community of Ekalaka is a compelling example of hope and resilience during a time of division and fear amplified by the COVID-19 pandemic. Two recent dissertations (Moore, 2023; Weikert, 2022) demonstrated how this rural Montana community managed the sadness, loss, and trauma resulting from the COVID-19 pandemic by working together to improve the connectedness, livability, and equity of their community (Weikert, 2022). With relationships that span multiple generations between families, Ekalaka continues to foster friendship and camaraderie among community members, which builds mutual trust, cultivates a feeling of security and support, and a sense of inclusivity and acceptance. This relational partnership (Weikert, 2022), epitomized by this exhibit and curriculum, offers an inspiring example of how rural education innovation (White & Downey, 2021) can bring hopeful visions to reality.

## Acknowledgements

We acknowledge the expert contributions of Sharon Carroll, Mardee Guyer, and Chioko Hammel who wrote the lessons for the *Hilleman & Vaccines: Connecting Culture to Scientific Curiosity* K-12 curriculum. Carroll and Guyer also piloted the curriculum in their classrooms, which provided significant insights for this article.

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