

MEMORANDUM OF UNDERSTANDING

This Memorandum of Understanding (the “MOU”) is entered into this _____ day of _____, 2022.

BETWEEN:

Palix Foundation
(hereinafter referred to as the “Foundation”)

and -

The City of Lethbridge
(hereinafter referred to as the “City”)

and -

The Governors of the University of Lethbridge
(hereinafter referred to as the “University”)

WHEREAS the Foundation has created a series of videos, written materials, and an online *Brain Story Certification* course (the “Course”) that are free of charge and openly accessible to the public on the *Alberta Family Wellness Initiative* (“AFWI”) website (the “Attributes”);

WHEREAS the University’s Canadian Centre for Behavioural Neuroscience has integrated the Course into the undergraduate course offering to increase students’ understanding of the practical application of the Brain Story;

WHEREAS the City would like to integrate Brain Story knowledge in their services and decision-making;

AND WHEREAS the parties wish to work in collaboration to develop a local strategy for Brain Story mobilization and application in Lethbridge (the “Collaboration”) for the ultimate purpose of adopting and delivering a system-based response to improve outcomes for individuals, families and communities; the Foundation, the City and the University (collectively the “Collaborators”) will participate in contributing to the learning platform that AFWI has created; the Collaborators’ participation and contributions will be further scoped in a project charter that is being developed by the parties together and such contributes will include the collection of data that documents the change and/or barriers to change, which will culminate in a co-generated report;

NOW THEREFORE in consideration of the mutual covenants and agreements contained herein the parties agree as follows:

1. Intention of the Parties

- 1.1 The parties hereto intend to work in the Collaboration to articulate an effective strategy to embed the Brain Story knowledge specifically to the local Lethbridge context, and engage in a mutual learning process centered on understanding the impact of brain story-based interventions at the organization and system level and how to measure this impact on outcomes. Specific contributions of the Collaborators are described in the attached Schedule A, Schedule B and Schedule C, which form part of this Memorandum of Understanding.
- 1.2 It is expected that the Collaboration will be ongoing and adaptive in nature.
- 1.3 The parties will keep each other reasonably informed of their respective work in relation to the Collaboration.
- 1.4 This MOU shall not create a legally binding obligation between the parties.

2. Palix Foundation Commitments

- 2.1 The Foundation will continue to make the Attributes publicly available at no cost via the AFWI website.
- 2.2 The Foundation will continue to engage with the City and the University, to facilitate efforts to apply the Brain Story and AFWI approach in Lethbridge, based on what we know from the AFWI developmental evaluation and elements of the AFWI Theory of Philanthropy – catalytic convening, knowledge entrepreneurship, and collaboration with public systems.
- 2.3 The Foundation may disclose, in its marketing materials or otherwise, that it is working with the City and the University in this Collaboration. In these cases, the Foundation will use the City's and University's name or logo only, and reflect the Collaboration in a positive manner. For any additional uses, the Foundation will seek approval from the City and the University.

3. City Commitments

- 3.1 The City will continue to keep the Foundation reasonably apprised of its use of the Attributes.
- 3.2 The City will provide the University and the Foundation with feedback, reports, outcomes, and evaluations related to the Collaboration if and as they come available.
- 3.3 The City will use and adapt (where required to suit the Lethbridge context) the AFWI Attributes, remaining consistent with the Collaboration strategy.

- 3.4. The City will promote the Collaboration, the Course and the Brain Story™ brand in a manner consistent with AFWI framing and terminology, of a reasonably good (or better) quality and not in a manner that is likely to reflect negatively on the Collaboration, the Course, the Brain Story™ brand, the Foundation or the University. The City will consult with the Foundation and the University with any uncertainty or discrepancy of messaging.
- 3.5. The City's use of the Brain Story™ trademark, and all other trademarks in or associated with the Attributes, enure solely to the benefit of the Foundation. The Attributes are being provided to the City for use on an "as-is" "where-is" basis.

4. University Commitments

- 4.1. The University will continue to keep the Foundation reasonably apprised of its use of the Attributes.
- 4.2. The University will provide the City and the Foundation with feedback, reports, outcomes, and evaluations related to the Collaboration if and as they come available.
- 4.3. The University will use and adapt (where required to suit the Lethbridge context) the AFWI Attributes, remaining consistent with the Collaboration strategy.
- 4.4. The University will promote the Collaboration, the Course and the Brain Story™ brand in a manner consistent with AFWI framing and terminology, of a reasonably good (or better) quality and not in a manner that is likely to reflect negatively on the Collaboration, the Course, the Brain Story™ brand, the City or the Foundation. The University will consult with the Foundation and the City with any uncertainty or discrepancy of messaging.
- 4.5. The University's use of the Brain Story™ trademark, and all other trademarks in or associated with the Attributes, enure solely to the benefit of the Foundation. The Attributes are being provided to the University for use on an "as-is" "where-is" basis. In the event a third party brings a claim against the Foundation related to the University's misuse or negligent alteration of the Attributes, the University agrees that it will indemnify and hold harmless the Foundation from any losses relating to such a claim.

5. Reservation of Rights

- 5.1. The use of the Attributes for the purposes of this MOU is granted on a non-exclusive basis, the Foundation reserves and retains all rights, title and interest in the Course and the intellectual property therein, including all copyright and license rights associated with the Attributes, the Course, and shall at all times, anywhere in the world, have the right to use or authorize others to use the Attributes and the Course in any way as the Foundation may desire.

6. Termination

6.1. Any party may terminate this MOU at any point with 60 days' prior written notice.

7. Term and Start Date

7.1. The term of this MOU shall be for a period of two (2) years, (the "Term") starting upon date of final execution by all parties of the MOU.

8. Miscellaneous

8.1. This MOU shall be governed by and construed in accordance with the laws of the Province of Alberta.

8.2. This MOU may be executed in one or more counterparts, and may be delivered by facsimile or by electronic mail in Portable Document Format (PDF), each of which when so executed shall be deemed to be part of the original and shall have the same force and effect as the original, and all of which together shall constitute one and the same MOU.

IN WITNESS WHEREOF this MOU has been executed by the parties hereto.

PALIX FOUNDATION

By: _____
Dean Prodan, President

Date: _____

The City of Lethbridge

By: _____
Name and Title:

Date: _____

The Governors of the University of Lethbridge

By: _____
Dr. Erasmus Okine, Provost & VP (Academic)

Date: _____

SCHEDULE “A”
PALIX FOUNDATION

**Brain Story mobilization and application in Lethbridge:
A Collaboration between the Palix Foundation, City of Lethbridge and
University of Lethbridge**

Background

In 2007, the Palix Foundation established the Alberta Family Wellness Initiative (AFWI) as a program to invest in improving the health and wellness of children and families in the province through sharing and promoting the application of knowledge about brain and biological development as it relates to early childhood development, mental health, and addiction (the Brain Story). The Brain Story is based on decades worth of scientific evidence showing that early experiences and environments are biologically embedded in the developing brain and set us on trajectories of good or poor health outcomes across the lifespan. More importantly, the Brain Story has been translated and framed for professionals and the general public through an ongoing collaboration between scientific experts at the Harvard Center on the Developing Child and social scientists at the FrameWorks Institute¹. This translated knowledge base allows non-experts to engage with and understand complex scientific concepts, and apply them toward innovative solutions that can reduce the burden that complex health and social issues, rooted in adverse childhood experiences (ACEs) and intergenerational factors, have on public systems, particularly health, education, human services, and justice.

Based on research funded by Palix, we know that the burden of ACEs is high in the general population in Alberta. In a study of over 4,000 adults in primary care in Calgary, the majority of whom were highly educated, employed, married and middle class or above, roughly two-thirds reported experiencing at least one ACE, and one-third reported experiencing three or more². ACEs cause toxic stress in childhood, which in turn influences gene expression and the development of brain circuits that support executive function, self-regulation and coping skills. The long-term impact of ACEs on health can be thought of as compromised brain circuits leading to poor decision-making, difficulty problem solving and coping with challenges, the adoption of health risk behaviours, and a life course trajectory that is more likely to include additional adversity in adulthood.

Many organizations in Alberta have pivoted to using Brain Story science within their programs and services to either help prevent or mitigate the effect of ACEs in their clients. Within the health sector, Alberta Health Services’ Child and Adolescent Addiction, Mental Health and Psychiatry Program in Calgary now formally tracks

¹ Kendall-Taylor N, Levitt P. 2017. Beyond Hat in Hand: Science Advocacy is Foundational for Policy Decisions. *Neuron*, 94:4. <https://doi.org/10.1016/j.neuron.2017.04.039>

² See slide deck, “ACEs-A Presentation October 2015”

ACEs in their patients and shares Brain Story concepts with families as a way of motivating the whole family to engage in treatment. In this way, the child's skills improve, the parents' or caregivers' skills improve, and the home becomes a more stable and supportive environment for the entire family. Within the Calgary Foothills Primary Care Network (CFPCN), several clinics are now using ACE history taking as a way to engage patients in meaningful conversations about their mental health and other chronic health conditions they are struggling with. CFPCN's Riley Park Maternity Clinic was the first clinic to pilot this approach to care and also used it as a way to prevent the intergenerational cycle of ACEs by engaging parents in discussions of how they would like to parent their child. These conversations uncovered unmet needs for mental health and parenting supports in many patients, and most reported that it enhanced their health care experience: they felt thankful to be asked, cared for, and better understood by their physician. Fresh Start Recovery Centre, a residential addiction treatment facility for men, has been using the concept of the resilience scale³ to explain how ACEs and ongoing adversity influence core skills and abilities that allow us to cope with challenges, and how safe, stable, supportive relationships and environments help shore up those skills and improve outcomes over time. They have built an interactive, desk top model of the resilience scale for use in therapy groups and report that their clients have a better understanding of how the therapeutic process works and are more motivated to engage in treatment.

The Opportunity

To date, Palix has invested almost \$90 million and has gained over a decade of experience in knowledge mobilization within policy and practice in Alberta and internationally. Our online Brain Story Certification Course has over 44,000 registered users in Alberta alone (86,000 registered users globally). As a result of these sustained knowledge mobilization efforts, we are now seeing the emergence of transformational change in multiple systems and organizations across the province that will support a more robust, comprehensive and coherent response to complex health and social issues versus a fragmented, programmatic or episodic response. Innovative new Brain Story based provincial policy platforms (e.g., Alberta Children's Services Well-Being and Resiliency Framework⁴, Evaluation Framework⁵, and miyo resource⁶) are also paving the way for this next phase. Developmental evaluations of our work indicate that these changes are largely predicated on key decision-makers gaining a deeper understanding of the science and its implications through the translated Brain Story; the emergence of a common standard of knowledge across organizations and systems through integration of the online course into mandatory staff training; and

³ A summary of the resilience scale metaphor and how it works to explain key concepts in brain development can be found here: <https://www.albertafamilywellness.org/what-we-know/resilience-scale>

⁴ <https://open.alberta.ca/publications/9781460141939>

⁵ <https://open.alberta.ca/publications/9781460143377>

⁶ <https://open.alberta.ca/dataset?audience=Indigenous+Peoples&tags=miyo+resource&topic=Government>

opportunities for collective sense-making and cross-sectoral, solutions-focussed discussions.

There is now a timely and important opportunity to deliberately encourage and develop a local strategy for Brain Story mobilization and application in Lethbridge, with the objective of adopting and delivering a system-based response to improve outcomes for individuals, families and communities. Several community organizations such as Family Centre, Fresh Start Recovery Lethbridge and the Opokaa'sin Early Intervention Society have already pivoted to using the online Brain Story course as mandatory staff training as has the Holy Spirit Catholic School Division and the Kainai School Board. The Lethbridge Police Service is currently exploring how to use this knowledge in the context of law enforcement. The City of Lethbridge has expressed interest in using Brain Story knowledge in their services and decision-making and the Kainai First Nation has been focused on this work for some time. The University of Lethbridge's Canadian Centre for Behavioural Neuroscience also has a core group of developmental neuroscience researchers who are currently using the online course as a teaching tool for undergraduate students in neuroscience and education (see Schedule "C").

Palix Contribution

Palix offers to serve as the convenor and project manager for this project with the City of Lethbridge and the University of Lethbridge. We are also in the process of seeking interest and representation from the Kainai First Nation. We will provide organizational support with consultants that will help to facilitate strategy, as well as for meetings and convenings at the organizational, institutional, community and provincial government levels.

SCHEDULE “B”
CITY OF LETHBRIDGE

Background

The City of Lethbridge is already conducting a number of initiatives that directly pertain to the Alberta Family Wellness Initiative (AFWI) and the Brain Story, such as:

- **Lethbridge Police Service (LPS) Training Requirement:** Sworn Officers are mandated to complete the full Brain Story training, seeing value in the technical information about addiction and brain development to cultivate greater understanding;
- **Community Session on Brain Story & Resiliency Scale:** On February 10, 2022, a condensed Brain Story presentation was provided to the general Lethbridge community. The event had 350 registrants and 225 participants;
- **City Council Standing Policy Committee Session on Brain Story & Resiliency Scale:** On February 10, 2022, the Community Safety Standing Policy Committee received a condensed presentation on the Brain Story’s key tenets, helping to broaden knowledge of the Brain Story within City Council;
- **Community Wellbeing and Safety Strategy (CWSS) Linkage:** The City’s CWSS was adopted in 2019. The CWSS, as a whole, focuses on holistic wellbeing and acknowledges that wellbeing may look different to everyone depending on their lived experiences. A foundational principle of the CWSS is achieving individual and family wellbeing, which is a shared principle with the Palix Foundation who created and delivers the AFWI;
- **“Building Brains Together” Program:** The City of Lethbridge funds the “Building Brains Together” program, which works with many Lethbridge organizations (closely aligned with the Alberta Family Wellness Initiative), and offers resources including workshops and professional development, educator and caregiver online courses, and engages in research regarding healthy brain development, executive function and resiliency in children;
- **“Supporting a Culture of Recovery: A Lived Experience Project”:** Dr. Cheryl Currie with the University of Lethbridge has begun working on a research project that began with the Reconciliation Lethbridge Advisory Committee (RLAC). The project will focus on pathways to addiction recovery through conducting person-centered interviews. The project will provide a Lethbridge-catered, qualitative assessment of specific challenges and opportunities Lethbridge residents have to cultivating pathways to recovery;
- **Integrated Coordinated Access (ICA) System:** The City’s Community Social Development Department has rolled out an ICA network and navigator training to better support vulnerable residents connect to services within the community;
- **Pertinent Partnerships:**
 - **Indigenous Relations:** To further the City’s commitment to reconciliation and relationship-building with Indigenous Peoples and

Communities, a Memoranda of Respect, Understanding and Partnership was signed between City of Lethbridge City Council and the Kainai/Blood Tribe Chief and Council in September 2021. An identified area of shared interest is Health and Wellness. Through strengthening communication and relationship with the Blood Tribe, the City of Lethbridge is able to better respond to and represent Blackfoot and other Indigenous Communities and Peoples in service-delivery responses that support health, wellness, and social inclusion. Understanding the disproportionately negative health outcomes for Indigenous Peoples and Communities due to intergenerational trauma and adverse childhood experiences fueled by settler colonialism, having the Brain Story as a foundation for elected officials helps to further cultivate that empathy, respect and shared understanding within decision-making.

- **School Divisions:** The City of Lethbridge works with local school divisions frequently (e.g. through the CWSS Advisory Committee, and other City Council boards, commissions and committees). Access to superintendents ensures continuous communication and opportunity to leverage the AFWI Attributes in the number of initiatives the divisions and the City mutually take part in.

Strategic Alignment

Corporate or City Council Action Priorities

Additionally, the City of Lethbridge has a number of strategic plans or priorities that significantly align with the AFWI Attributes. Some of these aligning strategies and priorities are:

- **Corporate Performance Excellence:** One of the key pillars of the City of Lethbridge's Corporate Strategic Plan is *Performance Excellence*. This pillar focuses on "increasing value for customers" and "enhancing personal learning opportunities" for staff. Within Performance Excellence, there is opportunity to encourage the Brain Story to be an offered training to cultivate greater understanding and compassion, particularly for front-line positions (e.g. first point-of-contacts within City Hall).
- **Corporate Partnership Excellence:** Another key pillar of the Corporate Strategic Plan is *Partnership Excellence*, which encourages deliberate and intentional partnerships permitting the City to better represent and cater service-delivery to a multitude of diverse residents. Understanding diverse needs of the customers we serve and represent can be benefitted by utilizing the AFWI Attributes.
- **City Council Priority "Healthy and Diverse":** In City Council's 2022 Action Plan, they identified healthy and diverse as a key focus area, stating that "prioritiz[ing] health-supporting developments and the wellbeing of all residents." Similar to the above points, ensuring thorough understanding of healthy brain development and inhibitors to such fosters greater understanding prior to making impactful decisions for the community.

- **City Council Priority “Supports the Region”:** Another key factor is “supports the region.” While this directive is expansive, utilizing the AFWI Attributes within the City of Lethbridge provides a case study and fodder for other municipalities to also capitalize upon the Attributes and integrate scientific knowledge about brain development, mental health and addiction into policy and practice.

The Opportunity

Execution of Responsibilities

With municipal government having ample opportunity to engage directly with the community it serves, the City of Lethbridge is optimistic about leveraging existing processes and practices that can have the Brain Story teachings and AFWI Attributes integrated within it. Not only will this expand corporate understanding, but also to the broader Lethbridge community. Some of these initiatives may include coordinating condensed presentations/sessions on the Brain Story’s Resiliency Scale for the Lethbridge community with the Palix Foundation. Key target organizations and audiences will be identified, but may include community and corporate internal stakeholders (business owners, service providers, community groups, City of Lethbridge business units, etc). A Project Charter will be developed to plan and execute specific initiatives stemming from this MOU.

SCHEDULE “C”
UNIVERSITY OF LETHBRIDGE

Background

The University of Lethbridge, established in 1967, has grown to be Canada’s destination university for all who seek a comprehensive, liberal education-based training by promoting a diverse and inclusive environment; inspiring research-informed teaching and learning; and fostering creative discovery, scholarship, professional endeavors, experiential opportunities and community engagement. As part of the strategic directions of the University, the institution aims to build an internal community and enhance relationships with external communities such as the City of Lethbridge and the Palix Foundation. Through projects such as the Alberta Family Wellness Initiative (AFWI), the University commits to taking action on education, research, policy formation and information exchange necessary to advance this initiative.

The Canadian Centre for Behavioural Neuroscience (CCBN) at the University of Lethbridge was the first established neuroscience department in the country and home to some of Canada’s leading neuroscientists. Our faculty have a wide range of interests that span topics such as memory, neuroplasticity, comparative neurology, brain development, neurodegenerative disease, recovery after brain injury, decision making, gambling, play, sleep and stress. And all of our faculty have national and international reputations for their work. The Department is located in the Science Commons, Canada’s advanced facility for science education and research. This new \$280-million facility truly puts science on display and will inspire the next generation of researchers, entrepreneurs, and leaders. With open and flexible laboratories, makerspaces and specialized outreach spaces, students from kindergarten to PhD-level, faculty, and community members will have boundless opportunities for hands-on learning, collaboration and discovery.

Bryan Kolb is a Professor in the Department of Neuroscience who looks at how neurons in the cerebral cortex change in response to experiences including drugs, hormones, stress, and injury, and how these changes influence behaviour. Over the past 45 years he has identified ‘rules’ that govern the effects of cerebral injury at different developmental ages with a goal of developing treatments to remediate neurodevelopmental disorders in children. Kolb has demonstrated a variety of mechanisms that underlie improvement from adverse perinatal experiences including neurogenesis and synaptogenesis. In addition, he was the first to show (with Terry Robinson at the University of Michigan) that psychoactive drugs produce permanent changes in neuronal structure in cerebral structures, and that these changes influence later brain plasticity. Current work is looking at: 1) the role of traffic noise stress early in life on brain and behavioural development, later brain plasticity, and the onset of dementia; and, 2) the effectiveness of treatments during the neonatal period on

attenuating or blocking dementia onset in a rodent model. Kolb is an Officer of the Order of Canada and a Fellow of the Royal Society of Canada.

Robbin Gibb is a Professor in the Department of Neuroscience. Her research has two main themes: 1. How prenatal and preconception experience influence brain development and 2. How to improve outcomes for preschool and adolescent children by enhancing language, executive function and self-regulation, and motor skills. Aside from teaching commitments and research Dr. Gibb gives talks and workshops to educators, parents, medical professionals and public interest groups on the role of early experience in shaping brain development. Dr. Gibb is a member of the Early Childhood Education Advisory Committee for Lethbridge College and advisor for the Alberta Government Ministry for Children's Services, and leads the Building Brains Together initiative for the City of Lethbridge.

Claudia Gonzalez is a Professor in the Department of Kinesiology and an adjunct to the Canadian Centre for Behavioural Neuroscience. Her research focuses on motor contributions to cognitive abilities through the lifespan and she is co-investigator for the Building Brains Together.

Allonna Harker is an Instructor in the School of Liberal Education and is completing her PhD in Neuroscience at the Canadian Centre for Behavioural Neuroscience. Her in class teaching is focused on delivering several courses on the AFWI's Brain Story wherein students are offered an opportunity to make an in-depth examination of the themes presented in the online Brain Story course. Her research focuses on the influence of fathers and their experiences in the preconception period on brain development in their offspring. Allonna was instrumental in developing the BBT program and continues with BBT as a steering committee member.

The Opportunity

There is an increasing literature on the importance of developing strong executive function (EF) skills in preschoolers and adolescents so they can enjoy better academic performance, stronger relationships, increased resiliency and lifelong success. We know that children are not born with EF skills but develop them over time. The BBT program offers playful activities that target the development and strengthening of EF while building stronger relationships between children and their caregivers or educators. Ultimately by building adult capability around child development and executive function skills, the children in our community will benefit.

University of Lethbridge Contribution

As mentioned above, the University of Lethbridge is home to several internationally renowned researchers in the areas of brain development, neuroplasticity, epigenetics, stress, addiction, executive function, and play – all topics that are implicated in the Brain Story. Therefore, the University serves as a local generator of the science and knowledge that is distributed via the AFWI. The University also produces graduates and post-graduates who are highly trained in this science and able to enter the

workforce with the necessary competencies to effect change in the areas of policy and practice that directly impact the health and wellness of the community.

The Building Brains Together (BBT) program that operates through the University of Lethbridge integrates key elements of the Brain story and the BBT works extensively in the community with other service providers to inform adults about the importance of positive experiences, serve and return relationships, executive functions skills, and protection from toxic stress, to optimize child brain development.

Our pop-up tent events in the City of Lethbridge that focus on play are well attended by parents/caregivers and children alike. We assess the effectiveness of our program materials by testing and retesting and soliciting feedback from the caregiver/educators that participate. We offer workshops to demonstrate practical ways to build executive function skills and promote active skill building for parents/caregivers/educators and service providers. Our website has become a popular resource for adults from the local area and from afar.

The Brain Story is currently a class taught in LBED and cross-listed in Neuroscience. This provides students without a strong STEM background opportunity to learn about the science of child development. Many students who access this course intend to further their studies in Education or Health Sciences. The course also features guest lectures from renowned faculty from the CCBN, providing the students with additional exposure to the research in areas related to the Brain Story, and it further promotes the Building Brains Together program and the information on how to get involved. Undergraduate students benefit from the program through independent studies, volunteer opportunities and summer studentship placements.

The Brain Story is also a requirement of the Master of Education Teaching, Learning, Neuroscience cohort, which facilitates the uptake of the Brain Story among both in-service and administrative educators from K-12.