

Remote PAWS Your Stress therapy dog program outcome evaluation report:

February – April 2021

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Executive Summary

The present evaluation of the remote University of Saskatchewan (USask) PAWS Your Stress therapy dog program was completed as part of a graduate student practicum. The purpose was to a) determine expected short-term, intermediate-term, and long-term outcomes of the remote program, and b) examine the extent to which short-term program outcomes were met. In this report, *online program* refers to social media and web-based aspects of the program (Facebook, Instagram, YouTube, website), while *remote* refers to the scheduled, live PAWS Your Stress Zoom sessions. A formative, utilization-focused evaluation was completed to ensure the results of the evaluation would be useful for the intended users.

To uncover expected outcomes of the remote program, a 1.5-hour meeting was held with the PAWS Your Stress team. Separate program logic models were created for a) USask students (see Appendix A), and b) USask staff, faculty, and the broader community (see Appendix B). As well, team members recognized that the animal handlers may also experience benefits from volunteering. A program logic model was created for the animal handlers (see Appendix C).

Nine Zoom sessions took place between January 28 and April 29, 2021. The sessions occurred once every two weeks, with the exception of final exam season, in which sessions occurred once per week. Within these sessions, thirty-two unique individuals attended. Most sessions had six attendees and most attendees were USask students.

Altogether, the findings indicated that attendees of the remote PAWS Your Stress program experienced a variety of benefits from accessing the program. Similar to the findings in the process evaluation (see www.therapydogs.ca), attendees were highly appreciative of the program and the animal-handler volunteers.

- **Qualitative interviews with attendees (n = 5)** revealed that attendees felt comforted, supported, and happy. Some attendees also reported reductions in feelings of depression and anxiety. In relation to COVID-19, almost all participants said the session(s) helped them feel a) less isolated/alone, b) an increased sense of connection, and c) relieved from the uncertain COVID-19 context. One participant defined connection as building a relationship; thus, they did not experience a sense of connection. Although all participants only attended one or two sessions, each discussed the most significant changes they experienced as a result of the remote program. These changes were highly individualized and addressed a variety of short-term program outcomes, such as feeling supported and decreased feelings of depression. Some individuals noted how the sessions helped them facilitate connections outside of the session.
- **Handlers (n = 11) participated in qualitative questionnaires and/or interviews**, sharing their perceptions of the most significant changes attendees experienced from accessing PAWS Your Stress remotely. Using examples, most thought that attendees experienced a sense of connection, decreased stress and/or anxiety, happiness, and a desire to manage personal stress. When asked about differences in effects for attendees in-person versus on Zoom, most mentioned that attendees might not experience stress relief in the same way without being able to physically interact with the dog. Handlers also commented on changes that they and their animals experienced.

Thirteen recommendations are discussed in the conclusion based on the evaluation findings and five areas for future direction are provided.

Evaluation Purpose

Due to COVID-19 physical distancing restrictions mandated in March 2020, the USask PAWS Your Stress therapy dog program (PAWS Your Stress) was required to transition to online and remote formatting. In this report, *online program* refers to social media and web-based aspects of the program (Facebook, Instagram, YouTube, website), while *remote* refers to the scheduled, live PAWS Your Stress Zoom sessions. **Details about process-related aspects of the program can be viewed in a previous process evaluation report of the online/remote program (see www.therapydogs.ca).** The process evaluation report outlines the details associated with the in-person to online transition, as well as program inputs, activities, and audiences. For context, though, PAWS Your Stress operates in partnership with the St. John Ambulance therapy dog program. Handlers and animals from this program volunteer to take part in the PAWS Your Stress program, in-person and currently via Zoom.

The present evaluation was completed as part of a graduate student practicum. The purpose of the evaluation was to a) determine expected short-term, intermediate-term, and long-term outcomes of the remote version of PAWS Your Stress, and b) examine the extent to which short-term remote program outcomes were met. Thus, a formative outcome evaluation was conducted. Formative evaluations are used during development or improvement stages of a program with the goal of enhancing existing processes and outcomes (Scriven, 1981).

The results of this evaluation will help the PAWS Your Stress team understand how attending the remote program, specifically, has affected USask students, staff, and faculty between December 2020 – March 2021. The remote version of the program is largely exploratory because it is novel and team members expressed uncertainty of program targets/expectations in the process evaluation. Further, based on a literature search I conducted, I found no evidence of outcomes based on *remote* therapy dog programming. Thus, the expected program outcomes are also exploratory. The evaluation results are intended to help solidify the expected, exploratory program outcomes.

Evaluation Approach

Utilization-focused evaluation was used as a theoretical framework to guide the following evaluation. Utilization-focused evaluation involves “intended use [of the evaluation] by intended users” (Patton, 2008, p. 37). This approach is ideal when making collective decisions about evaluation components (e.g., purpose, type of data, design, etc.) that align with key stakeholders’ intended uses. Therefore, it was important to consult with PAWS Your Stress team members throughout the evaluation (i.e., program founder, program coordinators, social media coordinators, and evaluation and/or research specialists). Table 1 outlines procedures that were engaged in to ensure the evaluation would be useful for the PAWS Your Stress team.

Table 1

Procedures undertaken to encourage evaluation usefulness for the PAWS Your Stress team

Evaluation Stage	Team Inclusion
Planning (Evaluation design)	A draft of the evaluation plan was shared with the PAWS Your Stress team during a weekly meeting. A brief PowerPoint outlined the evaluation purpose, goals, proposed methods to assess short-term outcomes, and a tentative evaluation timeline. Team members were encouraged to share their thoughts and ask questions.
Planning (Expected outcomes)	A 1.5-hour team meeting was held, in which the team established goals and/or expectations of the remote therapy dog program. The resulting information determined which short-term outcomes to assess. Details about this meeting can be found in the <i>Program Logic Models</i> section (p. 5).
Planning (Data collection materials)	Before data collection began, the program founder and an evaluation specialist on the team were emailed data collection materials. Both individuals provided suggestions and comments on a consent form, an interview guide, and a brief email questionnaire.
Data collection	<p>During weekly meetings, team members were provided with verbal evaluation progress updates. Team members provided feedback regarding the amount of data collected (e.g., the number of interviews and questionnaires completed). As well, a document with salient participant quotes was promptly shared with team members to help them understand the effects of the program at the earliest timepoint possible.</p> <p>Animal handlers were invited to participate in a brief questionnaire using the most significant change technique, whereby they were asked to comment on their perceptions of the most significant change that attendees experience due to the remote PAWS Your Stress program (see <i>Qualitative Questionnaires and Interviews with Handlers</i> section, p. 30). Due to time limitations of the current project, it was only possible to conduct follow-up interviews with approximately three individuals who participated in the questionnaire. In line with the most significant change technique (Dart & Davies, 2003; Davies & Dart, 2005), team members were included in this process when they were asked to vote on which questionnaire responses they perceived to be the most significant. Based on the results of this anonymous vote, four handlers were invited to participate in follow-up interviews. This allowed the team to decide which outcomes they wished to obtain more information on, and perhaps which outcomes they valued most as a team.</p>
Final report	Each team member had the opportunity to review the evaluation report and provide feedback its contents before the final draft was submitted.

Program Logic Models

Program logic models (PLM) depict how program activities are proposed to eventually result in varying levels of program outcomes (Rush & Ogborne, 1991). The first step (Section A) was completed to determine expected outcomes for the online/remote version of the PAWS Your Stress PLM. The next step (Section B) explains how PLM narratives were developed for the new PLMs (see Appendices A, B, and C).

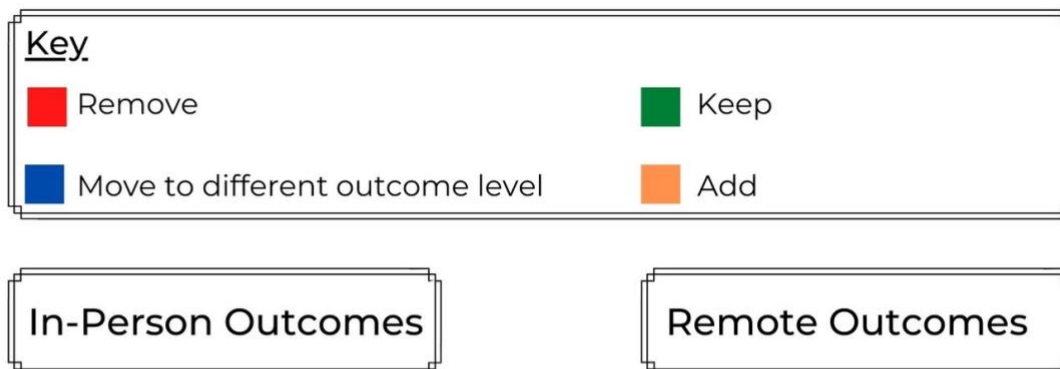
Section A. Revised Program Logic Model Outcomes

The process evaluation report focused on changes that were made to *process-related aspects* of the PAWS Your Stress PLM (program inputs, target audience, and program activities). This section outlines changes that were made to *outcomes* in the PLM to more accurately reflect the remote version of the program.

All PAWS Your Stress team members ($n = 7$) participated in a 1.5-hour Zoom meeting on February 11, 2021 to discuss program outcomes that people may experience from attending the remote, scheduled PAWS Your Stress Zoom sessions. Although the meeting was not intended as a formal focus group, an interview guide was created to ensure important topics were covered (see Appendix D). The discussion centred around the existing PLM for the in-person version of the program created by Dr. Linzi Williamson in 2019. The team discussed:

- Expected cognitive changes attendees may experience (Short-term outcomes)
- Expected behavioral changes attendees may experience (Intermediate- and long-term outcomes)
- Overarching program goal (Ultimate outcome)
- How outcome pathways may differ for different groups of individuals that attend the Zoom sessions (e.g., USask students versus staff).

Figure 1 (see p. 7 - 8) outlines outcomes that were **removed, moved to a different outcome level, kept, or added** from the in-person PLM to more accurately reflect the online/remote version of the program.



Short-term outcomes

- Increased feelings of love/comfort, support, and acceptance
- Decreased feelings of loneliness and depression
- Decreased feelings of anxiety
- Decreased feelings of stress



- Increased feelings of love/comfort, support, and acceptance
- Decreased feelings of loneliness and depression
- Decreased feelings of anxiety
- Decreased feelings of stress
- Increased happiness/uplifted mood
- Increased awareness of therapy dogs and animal companions
- Increased sense of connection with dogs and handlers
- Decreased feelings of social isolation in the context of COVID-19
- Sense of relief from widely shared, uncertain context of COVID-19
- Precursors to "sense of mattering": increased sense of being a) attended to by others, and b) valued by others

Intermediate-term outcomes

- Decreased blood pressure
- Decreased emotional distress and psychological pain
- Decreased stress response
- Need for physical touch met more



- Decreased blood pressure
- Decreased emotional distress and psychological pain
- Decreased stress response
- Increased online/remote human connection and relationship building

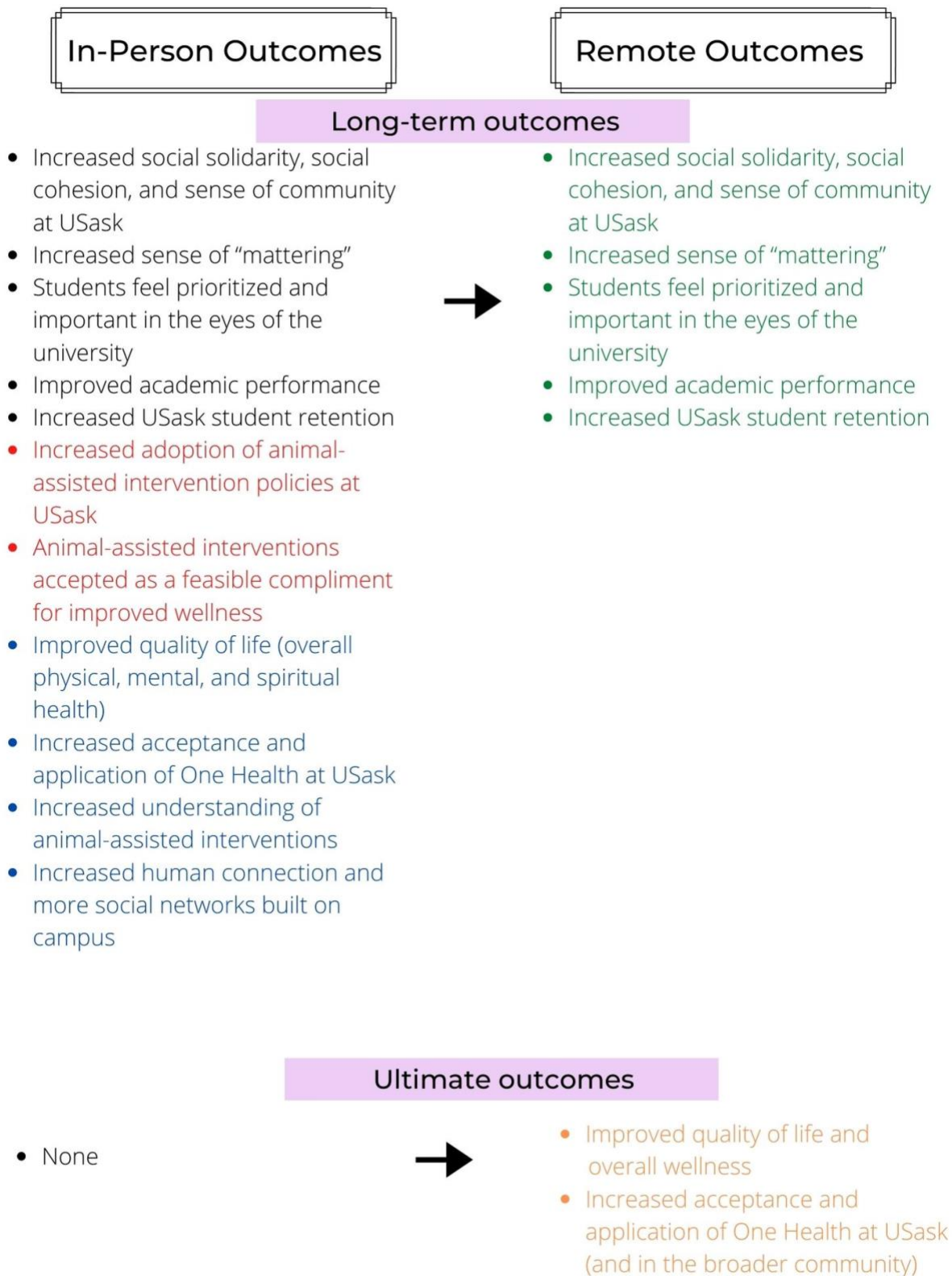


Figure 1
Summary of changes made to the remote PLM from the in-person PLM

Two main points were made in the team meeting:

- 1) Team members acknowledged that **certain program outcomes appear to only be applicable to certain attendee groups**. For instance, some outcomes are specifically directed at students (e.g., improved academic performance). Thus, the team decided that multiple logic models were needed to accurately illustrate the expected outcomes for different attendee groups. Namely, the team sought a separate PLM for USask students and one PLM for USask staff, faculty, and the broader community.
- 2) The role of animal handlers in the remote Zoom sessions is different compared to their role in the in-person sessions. On Zoom, compared to in-person, handlers are more likely to initiate and maintain conversation with others in the session. The team shared that **handlers may also experience outcomes based on their involvement in the online/remote version of the program**. Thus, it was decided that a separate PLM would be created for the animal handlers.

See Appendix A for the USask student PLM; Appendix B for the USask staff, faculty, and broader community PLM; and Appendix C for the animal handler PLM.

Section B. Program Logic Model Narratives

Program logic models are often accompanied by theories of change (i.e., narratives) that explain “assumptions about the change process actuated by the program and the outcomes that are expected to be effected as a result” (Rossi et al., 2019, pp. 65). The in-person PAWS Your Stress PLM narrative outlined research explaining why outcomes were expected to result from attending the program, and how each outcome was logically linked to other outcomes. The current logic model narratives follow the same formatting for consistency purposes. Program logic model narratives are only provided for two PLMs: a) USask students, and b) USask staff, faculty, and the broader community. Due to the time-limited nature of this student practicum, and because animal handlers were not the focus of this evaluation, a narrative was not established for the animal handler PLM. The animal handler PLM, though, was created based on a rapid literature search. Rapid literature searches forego methods that would be traditionally used in a systematic review of the literature to make the process quicker (Gannan et al., 2010). In this case, only a small subset of articles was read to hypothesize links in the animal handler PLM. Further, because the process-related components of the PLM are outlined in the process evaluation report, only the outcomes are discussed in the present narratives.

The present PLMs illustrate proposed program outcomes of the remote, scheduled PAWS Your Stress Zoom sessions that began in September 2020. As this format of the program is novel, the literature on the effects of remote therapy dog programming is scant. Thus, it is important to keep in mind the exploratory nature of the outcomes included in the PLMs and the linkages between them. While literature evidences many feelings that people experience after attending in-person therapy dog sessions, the extent to which these feelings emerge following the remote Zoom sessions is unknown. Program logic model narratives can be found in Appendix A (USask students) and Appendix B (USask staff, faculty, and broader community).

In order to understand the extent to which attendees may experience intended program outcomes, it is important to acknowledge program assumptions and external factors. *Assumptions* refer to conditions which need to be met in order for the program to produce

successful outcomes (Ball et al., 2017). In order for PAWS Your Stress attendees to experience program benefits, we assume that attendees: a) spend enough time in the Zoom sessions, as well as enough *quality* time; b) like dogs and/or other animals that appear in the Zoom sessions; and c) are ready and able to receive program benefits (e.g., love, comfort, support, connection, etc.). *External factors* are elements outside of a program that can influence one's ability to experience intended program outcomes (Ball et al., 2017). The following are potential external factors for PAWS Your Stress: a) competing demands on attendees' time, b) competing mental health-related programming, c) availability of funding, d) access to/comfort using technology (computer, Internet, Zoom), and e) availability and participation of the St. John Ambulance therapy dog program.

Session Overview: January – April 2021

Nine scheduled, remote PAWS Your Sessions were held on Zoom between January 28th and April 29th, 2021. From January to March, sessions were held once every two weeks on Thursdays from pm – 2pm CST. From April 8th – April 29th (final exam season for USask students) sessions were offered once per week on Thursdays from 1pm – 2pm.

Peer health mentors were present in all nine sessions. In five sessions, one peer health mentor was present. In the remaining four sessions, two peer health mentors attended. Most often, six animal-handler teams volunteered in the sessions. The number of volunteering handlers in each session ranged from four to 10. A total of 32 unique individuals attended the sessions between January 28 and April 29¹. The remaining eight people attended more than one session. In most sessions, there were six people that attended^{2,3}. The number of attendees that accessed PAWS Your Stress per session ranged from three to eight. Figure 2 illustrates the breakdown of groups of individuals who attended the session, illustrating that most PAWS Your Stress participants are students, followed by community members, and USask staff.

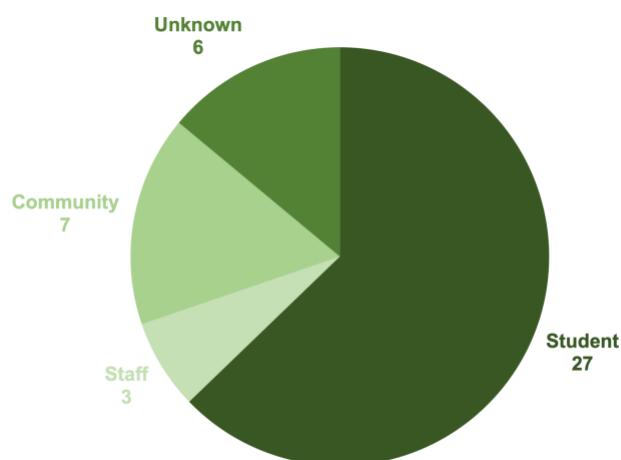


Figure 2
Breakdown of PAWS Your Stress attendees by their role

¹ This number does not include PAWS Your Stress team members, peer health mentors, or animal handlers.

² This number does not include PAWS Your Stress team members, peer health mentors, or animal handlers.

³ This number is based on 8/9 sessions, as data is missing for one session due to technical difficulties.

Qualitative Interviews with Attendees

I conducted five semi-structured, one-on-one qualitative interviews with PAWS Your Stress attendees that took place between March 8th and 24th, 2021 via Zoom. The purpose of the interviews was to assess short-term outcomes in the remote PAWS Your Stress PLM. Following consent (see Appendix E), participants were asked about short-term outcomes related to mental health, connection, and COVID-19. In addition, a modified version of the most significant change (MSC) technique was applied to each interview. The MSC technique is a story-based approach to data collection, whereby participants are asked to report the most significant change they have experienced as a result of the program (Dart & Davies, 2003; Davies & Dart, 2005). This was particularly beneficial for evaluating the novel, remote version of PAWS Your Stress because the technique can help pinpoint unexpected program outcomes and is a method that invites rich, detailed data (Dart & Davies, 2003; Davies & Dart, 2005). These advantages are particularly useful, for many of the current expected program outcomes are exploratory in nature. See Appendix F for the interview guide.

Participants who attended at least one Zoom session between December 2020 and March 2021 were eligible to participate. Only attendees who provided their email to the program coordinators were invited to participate, as there was no other way to contact attendees without an email. It was decided by the PAWS Your Stress team that a sample of five was sufficient due to the quality of information gathered and the time-restricted nature of the evaluation practicum. Participants were offered a \$25 (CAD) honorarium to express appreciation for their participation, although only two participants accepted it. Table 2 outlines recruitment details. Compared to response rates in some survey literature, the overall 20% response rate can be viewed as low (Baruch & Holtom, 2008) or average (Dillman et al., 2014). However, 20% is a higher rate compared to other studies that specifically used email to recruit participants (Koo & Skinner, 2005; Temple & Brown, 2011).

Table 2
Recruitment Details: Qualitative Interviews

	Round 1 Initial Contact	Round 1: Second Contact	Round 2: Initial Contact	Round 2: Second Contact	Round 3: Initial Contact
Date(s) Recruitment Emails Sent	March 1 – 3, 2021	March 15, 2021	March 15, 2021	March 29, 2021	March 29, 2021
Number of Individuals Contacted	22	17	2	2	1
Number of Interested Participants	4	2	0	0	1
Number of Interviews Completed	4	1	0	0	0

Recruitment Rate (%)	18%	6%	0%	0%	0%
Total Number of Interviews Completed: 5					

All participants identified as women between the ages of 21 and 32 (one participant did not provide their age). All women had pets, but only three lived with their pet(s) at the time of the interview. See Table 3 for detailed participant demographics.

Table 3

Participant Demographics: Qualitative Interviews

Participant	USask Connection	Age	Gender	Pet Status	Number of PAWS Your Stress Zoom sessions attended
400	USask student	No response	Woman	Yes, I currently live with my pet	1
401	USask staff	32	Woman	Yes, I currently live with my pet	1
402	USask student	21	Woman	No, I do not currently live with my pet	2
403	USask student	28	Woman	Yes, I currently live with my pet	1
405*	USask student	32	Woman	No, I do not currently live with my pet	2

*Please note: An individual who expressed interest in the interview was assigned the participant number 404 to fill out the demographic form, however did not end up participating.

Results

Interview length ranged from approximately 30 minutes to 55 minutes, with an average length of 37 minutes. Certain short-term outcomes from the PLM were not directly inquired about in interviews for two reasons. First, logic model research was conducted throughout the duration of the evaluation; thus, when the interview guide was created, I did not feel well equipped to ask about certain constructs (i.e., mattering). Second, it was thought that certain topics would arise naturally in the interview (i.e., feelings of acceptance and stress).

Content analysis was completed by coding answers by questions in the interview guide. These codes were then combined into three categories: a) Mental health and well-being, b) COVID-19, and c) Miscellaneous. The exception to this strategy was the MSC question. For the MSC question, analysis was conducted according to recommendations in Davies' and Dart's (2005)

guide to the MSC technique. The authors suggest the following coding strategies to analyze the MSC stories:

- **Analyzing stories for positive and negative changes:** This method involves noting whether change stories are positive, negative, or encompass both positive and negative aspects. I also added a neutral code for when changes were neither positive nor negative.
- **Analyzing the changes mentioned in the stories against a logic model:** For this strategy, I aligned change stories with expected outcomes in the program logic models (See Appendices A and B).
- **Thematic coding (modified):** Davies and Dart (2005) suggest “search[ing] all the stories for different kinds of change” (pp. 41). However, if I employed this strategy there would have been a lot of overlap in coding with the program logic model coding. Thus, I chose to look for “other” topics that were present in the most significant change stories. These codes were combined into overarching themes based on their relatedness to one another.

The results will be discussed in four broad categories: a) mental health and wellbeing, b) the COVID-19 pandemic, c) most significant change stories, and d) miscellaneous topics.

A. The Effects of PAWS Your Stress on Mental Health and Well-being

PAWS Your Stress is fundamentally a mental health and well-being program at USask, offering individuals a chance to relieve stress and, especially during COVID-19, to connect with animals and other humans. Participant responses strongly indicated positive influences of remote PAWS Your Stress on their well-being.

i. Love/comfort, and support: A primary goal of PAWS Your Stress, whether in person or remote, is to provide individuals with feelings of love/comfort and support. While the present respondents did not report feeling loved as a result of the Zoom session(s), most felt comforted and/or supported. When asked about what made them feel comfortable, they noted multiple reasons:

“It was that observation of genuineness.” (400)

“Everybody was so nice” (403)

“It’s that building of community. Especially if you go to multiple sessions” (405)

Similarly, support looked different for each participant that reported feeling supported:

“I think it’s just nice to have them as an option from USask and from the PAWS Your Stress... organization. What’s going on there is a nice thing to know that you are being supported for your mental health and your stress levels and just have those kinds of options available.” (401)

“I’ve seen other students in the same situations, ‘Oh I have a final tomorrow and I just need a break from studying’ or ‘I have a paper due in two days’ and I really related to that.” (403)

“This is a community that, although many of us are involved in the university world... it’s not just about the university it’s about all of the other things that are going on” (405)

ii. Happiness and/or uplifted mood: All participants responded affirmatively when asked if the session they attended made them feel happy or uplifted their mood. Participants felt happy and/or uplifted for several reasons.

“It was that engagement, the people, the trainers...were always speaking of the animals [in a] positive rewarding way...that kind of positive language mixed with the positive physical connection you could always see with them petting the dogs, you could see the dogs happy. You can see the person being happy and you’re just feeling that as they’re sharing all the stories.” (400)

“In the Zoom lens, it kind of felt like that lens was a bit lifted because you could see that there was a bona fide connection there and there was a genuine belief I would say in the work that they’re doing...It was nice to see connection” (400)

“Just seeing those pups and it’s just funny, I enjoy seeing all the different personalities.” (401)

“The fact that it had nothing to do with school [laughs]. I don’t think the session was very busy at all, so it was just people hanging out.” (402)

“I don’t have any pets, so it’s nice to see other people with theirs.” (402)

“There were some [animals] that I didn’t know their kinds and learning about them and their habits. It was really amazing.” (403)

A USask staff member shared a funny memory from the Zoom session they attended:

“The one whose cat also showed up also had another dog there...One would sit in the back and then the cat was there and the other dog was trying to play with the cat, and the cat was like ‘Okay this is my life...’ it was nice to see that, it was super funny and lifts up your day a little bit.” (401)

iii. Depression and/or loneliness: Interviewees reflected on whether they thought the PAWS Your Stress Zoom sessions could help them, or other people, with feelings of depression or loneliness. Four individuals believed the session(s) could help others, or did help them.

“I think yes...there’s a couple people I know that are really struggling, so finding out about this pathway and understanding it better... I did have the sense that maybe they would [experience decreased feelings of depression or loneliness]. I’ve had my own experiences with these things too. I feel like it did and it would.” (400)

“At the time I was really depressed, I was actually taking therapy sessions as well. I guess momentarily it does uplift your spirit, your mood. You know, maybe an hour later I went back to my old self, which was sad. Even those moments count.” (403)

One USask student mentioned how focusing attention away from negative things can play a role in uplifting one's mood:

"I think it is something that would be useful in taking your mind off things or thinking about something different...I wouldn't say animals ever made someone feel bad [laughs]. Not that depression is just feeling bad, if you know what I mean."

For another student, the extent to which the Zoom sessions could contribute to reduced feelings of depression or loneliness depended on what the attendee sought within the session:

"I think it depends on where people are at and what they're actually looking for...I think there are circumstances and points where yes it would be helpful... 'Are you looking for community?' because you can gain a lot of community from being part of this project or PAWS Your Stress concept, but I do think that because of some of the limits of Zoom, I don't think that it would be as effective if what you were looking for is the direct interaction with an animal...For people who would benefit most from that direct interaction with the animal, like the ability to sit down and pet a dog...you're not going to be able to get that from Zoom...I think it could be helpful, but I don't think it will be helpful across the board." (405)

One individual did not think the Zoom sessions would contribute to decreased feelings of loneliness and depression, contrasting depression with improved mood:

"I think that [the Zoom sessions] would assist with mood... it's hard to say that they would feel less depressed because being depressed is not necessarily just something that it's like 'Oh something's not working out' in whatever capacity that you can really fix... I don't know, I kind of see [depression and improved mood] as separate."

Some participants noted potential underlying mechanisms that would positively influence feelings of depression and loneliness, including connectedness, observing the handler-animal bond, and *"taking [one's] mind off things"* (402):

"Having past experience with therapeutic processes and other things like that, the comfort derived there was very different... This was just like in the sense of feeling connected I guess. And connected to something that was meaningful, but also genuine and yeah, it was nice." (400)

"I feel like it was the [handler-animal] bond. I don't think one would exist without the other...the animal has distracted focus, but it was that interaction I felt." (400)

iv. Anxiety: All participants thought, in some capacity, that the Zoom sessions could help them, or others, experience reduced feelings of anxiety.

"I think it could help to reduce anxiety. It did reduce mine...it was oddly calming." (400)

"I do think that this actually does have probably broader implications for anxiety than for depression. I think there is a lot of potential in helping people deal with anxiety and depending on the exact source of your anxiety." (405)

One student expressed that their reduced feelings of anxiety were temporary:

“I guess I can say that it can help anxiety as well, but for me it was a momentary experience.” (403)

A participant who spoke about social anxiety commented that having the dogs as a conversation starter is helpful:

“For most people who deal with social anxiety, that having a focal point to start the conversation is huge. The dog’s presence and their ability to be that conversation starter is really, really helpful” (405)

Two students felt that the extent to which decreased anxiety is felt depends on either a) the source of the person’s anxiety, or b) the temperament of the animal-handler team:

“If you were anxious over school work and you had spent your day slaving over your computer... I don’t think it would be that helpful in the fact that you’re still on a computer, you’re still staring at a screen and it’s not really a break... I think if you were anxious, if you just had generalized anxiety disorder, or were just having a bad day, again not that anxiety is just having a bad day, that would be a resource that you could turn to.” (402)

“There are going to be better dogs and better handlers than others in terms of being helpful and useful for somebody with anxiety. A really, really excitable dog and a really, really outgoing handler... all that’s going to do, at least for me, is just elevate my anxiety because there’s too much happening too quickly...I start looking for... ‘Who are going to be the calming influences here?’” (405)

v. Other mental-health-related effects: Interviewees mentioned a variety of other mental-health-related feelings and topics in relation to attending the remote sessions.

- **Relaxation/Calmness:** Interviewees shared that the remote PAWS Your Stress session was calming or relaxing in relation to other remote interactions.

“I think a stronger emotion that kind of resonated at the end, it was actually very, I’m missing the word, it’d be like very happy or calming or connective.” (400)

“It’s just more relaxed than a general everyday Zoom call... Most of my calls are just with work and they’re very official.” (401)

- **Connectedness (with no mention of COVID):** Most participants described a sense of connection or community that they felt from the session(s) they attended.

“[The Zoom session] had grounded me in the desire for connectivity” (400)

“The Zoom calls were a really nice place for community and interaction with likeminded people” (401)

"[The handlers ask]... "What do you do?" "How's it going?" It was during the holidays, close to holidays, so "Do you guys have any plans?" It was really nice to have that kind of connection, even if it was via Zoom" (403)

"[The Zoom session] has provided me with a sense of community and with a continuing set of skills to help me interact in a world that doesn't always work for me." (405)

- **Taking a break/relief from schoolwork:** Nearly all interviewees reflected on the opportunity the Zoom session gave them to take a break from their work or school work.

"I would say that the Zoom calls were... a nice break from everyday routine, to be able to just feel uplifted" (405)

"I think I had just finished a couple finals so I think I was feeling very, almost relieved...I was just done my finals so I wasn't stressed, but it was still a relief moment." (402)

"I had deadlines approaching and I just wanted to distract myself... It really distracted me from all this stress and those difficult thoughts." (403)

"It's about that chance to be present and to not be focused on what's happening later on in the day. It's almost a mindfulness exercise in a way because most of the time there's a lot of focus on "What's happening next?" but this is an hour out of your day where you basically just get to be present with what's going on now and not worry about what's going to happen in two hours from now" (405)

- **Hope:** One respondent commented that knowing about mental health resources gave her hope.

"There's other techniques or things going on that I didn't know of that I think are good. That gave me a bit of a positive hope." (400)

- **Lasting positive affect:** Two participants shared how the positive feelings they felt lasted beyond the duration of the session they attended.

"I felt like a little happy glow for a good day or so, it was nice." (400)

"It definitely helped me during that session. I felt good for about an hour, which means a lot for a depressed person... It lasted after the session...It gave me a smile, which was nice." (403)

Takeaway: Attendees felt a range of positive feelings as a result of attending the PAWS Your Stress Zoom sessions.

- Comfort and support
- Happiness and uplifted mood
- Reduced feelings of depression and anxiety
- Relaxation, connectedness, and hope

Participants noted important distinctions to consider, which may influence the degree to which people will experience reduced feelings of depression and anxiety. For example, thinking about what the individual is looking for within the session and what the source of their anxiety might be.

Lastly, two students reflected on how their positive feelings lasted beyond the duration of the session.



B. The Effects of PAWS Your Stress Related to the COVID-19 Pandemic



PAWS Your Stress moved to remote and online formats as a result of COVID-19 physical distancing mandates. As this evaluation took place within the context of the COVID-19 pandemic, it was necessary to inquire about how the program influenced exploratory, pandemic-specific outcomes. In relation to the current pandemic, the following topics include feelings of loneliness or isolation, connectedness, and relief from COVID-19 uncertainties.

i. Loneliness/Isolation: Three individuals said that they have felt isolated during the current pandemic (400, 401, 403), while others reported only feeling isolated sometimes (402), or not feeling isolated at all (405). Of note, the student who reported not feeling isolated mentioned that this was due to their “*low need for social interaction.*”

All participants answered affirmatively when asked if the PAWS Your Stress sessions did help with their feelings of isolation, or could help with potential feelings of isolation. They provided reasons such as the handler-animal bond, connecting with others, the ability to relate to others, and a sense of community:

“I keep rooting back to that interaction that you could see that there’s [a] positive dynamic between the person and the animal. It reminded me, sadly, and brought me to those connection pieces or points that I may have, or the ones that I may be missing” (400)

“I think that there’s really something to be said for time where people are together interacting in real time ‘cause you could watch cute animal videos...on YouTube where... it’s so displaced compared to real time... it definitely bridges a gap for isolation.” (401)

“Seeing that other people are going through the same stuff ‘cause there was also college-related conversation.” (403)

“That...sense of community is quite strong... one of the great benefits to having multiple handlers and dogs in the same rooms is that they already have a sense of community within their...group...and all they’re doing is welcoming whatever students show up in their room into this existing community structure that’s already there.” (405)

One student thought that the sessions could help with feelings of loneliness and isolation by connecting with other humans in the session, but further explained that this effect would not be unique to the remote therapy dog program:

“With the handlers and everyone there, it’s nice just to get to talk with someone...If you’re strictly stuck in your house, I definitely think it would help with isolation and loneliness. But I don’t think that would be because of the therapy dog program, I think that would just be the fact of seeing more people than you usually do... for example, if I were to video call my friends that I don’t get to see all the time, that also would make me feel less lonely and less isolated...I think it’s just the fact of seeing other people regardless of who it is helps with isolation and loneliness.” (402)

ii. Connectedness: Attendees responded to the question: *In the context of the COVID-19 pandemic, do you feel an increased sense of connection after attending the remote therapy dog sessions?* Four participants agreed that they felt an increased sense of connection (400, 401, 403, 405), while one individual did not agree due to their definition of connection:

“No I don’t think so. When I think of connection I think of a relationship or something like that formed... If you were to attend two or three and then all the sudden the handlers are caught up with what your life’s going like, you’d be able to form a connection with... the handlers there... After one session I don’t think that’s possible.” (402)

For those who agreed, the sense of connection was described as positive, a sense of community, and simply seeing and/or talking to other people. Some attributed the sense of connection to the handlers, though others expressed that the dogs played a role in the connection too.

“To distinguish it or differentiate it from other observations, it’s one of the few ones that I’ve seen recently that was very positive” (400)

“I think it was just like a connection of community...It’s just nice to have people that you definitely know are likeminded.” (401)

“It was nice to get to know people because of the pandemic, honestly, I don’t even know my classmates that well.” (403)

“I think the humans play a big part in it in Zoom compared to when we were in person...The handlers definitely, and other participants, play a huge part in it. They’re the ones that you can actually, really interact with” (401)

“I really felt a connection to the caregivers and the pets... I’d say both ‘cause while I was talking to the humans I was watching the animals...I watched them do this maybe strange move or they fell asleep in front of our eyes and it’s really interesting to observe ‘cause I have my own babies too.” (403)

iii. Relief from uncertain context of COVID-19: Examples of the uncertain COVID-19 context were shared with participants, including: “*When will the pandemic be ‘over’?*”, “*When will restrictions lift?*”, etc. One participant did not feel relief from the uncertain context of COVID-19, due to the remote nature of the program:

“No, I wouldn’t say I felt relief from COVID...the fact that it’s online and it’s on Zoom... that is a very significant part of the pandemic...the fact that everything is online and not in person. I think that really reiterates the fact that we’re in a pandemic. (402)”

Others, however, experienced relief for differing reasons. As a result of the PAWS Your Stress session, participants felt relief from isolation/disconnection, monotonous days, and conversations about COVID. Another felt relieved due to the stability of the sessions and because the sessions were something to look forward to. One felt relief from COVID-19 uncertainties just from knowing that supports exist.

“My first thought was to say isolation.” (400)

“It was nice just to have something different in the day ‘cause the days can be very monotonous.” (401)

“Kind of a relief from COVID, from the discussion of it, the numbers, where we’re at, when we’re going to be back in person. That portion of it, it was nice that no one mentioned it.” (402)

“When I was in the session they focused on the animals and the conversation, so maybe for a moment I even forgot that there was this pandemic.” (403)

“It’s knowing that this is something that will happen regardless of what else is going on in the world... even though things are kind of crazy in the world, there’s something to look forward to... because you know that this is going to happen” (405)

“There’s other techniques or things going on that I didn’t know of that I think are good. That gave me a bit of a positive hope.” (400)

Takeaway: Most participants expressed that they felt reduced feelings of isolation/loneliness, an increased sense of connection, and relief from COVID-19 uncertainties from attending the remote PAWS Your Stress program. Participants enjoyed observing the positive handler-animal interactions, the sense of community they felt, and being able to relate to other people in the sessions. The participant who did not share these views explained that the program being offered remotely reiterates the isolated context we are currently living in. Further, they shared that connections might be able to form over multiple sessions, but not from a single attendance. This point speaks to the program logic model assumption that attendees are spending enough time, and enough quality time, in the sessions to experience the intended program outcomes.



C. Attendees' Most Significant Changes

Discussions around the MSC questions lasted, on average, four minutes. Most significant change stories reflected multiple expected short-term program outcomes in the PLMs. Each story was unique, highlighting the different ways in which the program influenced themselves (400, 401, 403, 405) or might influence others (402). It is important to keep in mind that three participants had only attended one remote PAWS Your Stress session (400, 401, 403), and two participants attended two (402, 405). Thus, the MSCs they shared are undoubtedly influenced by the low program “dose.” Table 4 outlines the PLM outcomes that the MSC story directly or indirectly addressed, as well as whether the reported change was positive, negative, or neutral.

Table 4

Attendee MSC stories organized by outcomes in the program logic models

Participant	Program logic model outcome	Evidence	Positive, negative, or neutral
400	Increased desire to manage personal stress	<ul style="list-style-type: none"> <i>From the one session, the continued thinking made me think of different ways we approach...I wanna use the word healing. It's definitely opened up that sense of awareness from what I would burden as conventional paths to recognizing that there's a lot of different ways to come to these different states</i> 	Positive
	Increased awareness of therapy dogs and companion animals	<ul style="list-style-type: none"> <i>I have an animal, I've engaged and I love my animal. I love my dog. It's that sense of awareness. There's a greater awareness of it say with the whole therapeutic process going around it. It actually elevated me when I went home and I was like, I don't think I've been as aware</i> 	Neutral
401	Increased feelings of support AND Increased sense of being valued by others	<ul style="list-style-type: none"> <i>It's just nice to know the different supports that are available, especially during this time. I think that was really nice. It makes me feel supported</i> <i>It's nice working for, or being part of a larger organization 'cause I've worked for smaller ones where obviously they don't have the resources to be able to have these [supports] available.</i> 	Positive
	Increased desire to manage personal stress	<ul style="list-style-type: none"> <i>You can get so fixated or focused on work and your personal life and trying to still have somewhat of a social life and stay healthy. Sometimes, even though it's just a Zoom call, and then</i> 	Positive

		<i>it's another thing to do, but it was very simple to log in, to go between the rooms. I would say it did encourage just to actually see how simple it was. It's not another task to do. Then that kind of bridges with other supports that are available, just thinking like the yoga on Tuesdays or Wednesdays</i>	
402*	Decreased feelings of stress	<ul style="list-style-type: none"> <i>I think the main thing would be stress relief... for example [with decreased] isolation, I would say you can get that from things other than therapy dogs. Whereas it might not help you to be talking to someone because you could be stressed from being around people all day...just the human interaction and dogs are something different. Something away from that. I think that's where the stress relief comes in.</i> 	Positive
	Increased feelings of happiness and uplifted mood	<ul style="list-style-type: none"> <i>Bursts of serotonin from seeing a dog. I don't know, happiness...when you're staring at a dog smiling at you it's pretty hard not to smile back and get outta your head for a bit.</i> <i>I think the happiness part is the most significant because whatever it is about dogs that makes you happy, it's different than everything else</i> 	Positive
403	Decreased feelings of depression (during and after session)	<ul style="list-style-type: none"> <i>It was this beautiful session, but then I felt that maybe I'm complicit [in relation to query about animal ethics] because I participated...I have no idea [what the dog training is like] for my own selfish needs, 'cause I was depressed I needed some mood uplifting.</i> <i>Passage from earlier portion of interview: At the time I was really depressed... [the session] definitely helped me during that session. I felt good for about an hour, which means a lot for a depressed person.</i> 	Positive
	Increased sense of connection (with people	<ul style="list-style-type: none"> <i>P: [The Zoom session] was a brand-new experience for me. I got to talk</i> 	Positive

	<i>outside of the session)</i>	<p><i>about it to family and friends. That was an interesting anecdote from me.</i></p> <p><i>I: Do you think it facilitated a connection with your family, by talking about it?</i></p> <p><i>P: Yeah, definitely.</i></p>	
405	Increased sense of connection (with people outside of the session)	<ul style="list-style-type: none"> <i>One of the challenges of social interaction in the time of COVID is that we really aren't doing much. Outside of the school-related stuff...we just really aren't doing all that much. When you're having a conversation with your parents it's a little bit like 'Well, I can't really say I've done all that much. I did a bunch of school stuff, but you don't really care about the school stuff that I'm doing.'</i> So what do you talk about after the first five minutes? One of the big impacts of having PAWS Your Stress is it gives me a whole bunch of other things to talk to people about 	Neutral
	Decreased feelings of anxiety (outside of the session)	<ul style="list-style-type: none"> <i>For me as someone with a level of social anxiety, having something to have a conversation about is really, really useful. It is... much easier for me to walk into [a] situation knowing that I have something people would be interested in hearing about then to be in that situation and not necessarily know where to go or what I should be talking about. I think that maybe that's the big thing is the fact that it's something that I can use as a tool to help me in additional social situations than just that one specific situation of the actual event</i> 	Positive
	Increased engagement in stress management activities (for others)	<ul style="list-style-type: none"> <i>I've [talked to] a couple [people] before, I've been like 'You should sign up, you're a student, go say hi to a dog or two. You'll enjoy it. It'll give you more traditional social interaction in your life.' At least one of my friends did ultimately decide that that would be a good idea.</i> 	Neutral/ Positive

*Please note, this participant noted that she did not experience any significant changes due to her personal experience with therapy dogs. Her responses were suggestions about significant changes other people may experience.

Thematic coding (Davies & Dart, 2005) uncovered three main categories, with each topic mentioned by at least two participants: program sharing, COVID-specific appreciation, and consideration of wellness options.

i. Program sharing: In their MSC responses, three interviewees had discussed the PAWS Your Stress program with other people. Whether it was to refer others to the program, or have discussions about it within their existing networks, “PAWS Your Stress” made it into attendees’ conversations with others.

“The actual step I took was to... bring it into my workplace as a form of greater awareness for my colleagues because it’s rooted external to these kind of places... People are really seeking alternates or different paths. I’ve discussed the experience I’ve had and so people are interested.” (400)

“I got to talk about it to family and friends. That was an interesting anecdote from me.” (403)

“For some of my more social friends I said ‘You should sign up for a session and go say hi, you’d probably enjoy it because it would give you another option around socializing that isn’t strictly academic or isn’t inadvertently burdening your less social friends...’ At least one of my friends did ultimately decide that that would be a good idea. (405)

ii. COVID-specific appreciation: A USask staff member and USask student commented on their appreciation of the remote program during the pandemic, specifically in terms of support and connection.

“It’s just nice to know the different supports that are available, especially during this time.” (401)

“One of the challenges of social interaction in the time of COVID is that we really aren’t doing much. Outside of the school-related stuff...we just really aren’t doing all that much... I really think that’s the biggest difference is that it gives me something other than school to talk to people about, especially those people who aren’t as interested in academia as I am.” (405)

iii. Consideration of wellness options: Some participants reflected on the program as a wellness option, or as a novel wellness experience.

“The continued thinking made me think of different ways we approach...healing... the actual step I took was to...bring it into my workplace as a form of greater awareness for my colleagues...people are really seeking alternates or different paths.” (400)

“It is very nice to have these different options available, which you wouldn’t get if you weren’t at USask... It’s not another task to do. Then that kind of bridges with other supports that are available, just thinking like the yoga on Tuesdays or Wednesdays. Just those things, they are there for students, staff, faculty. It’s nice working for, or being part of a larger organization” (401)

“That was a brand-new experience for me...a really nice experience too.” (403)

Takeaway: The MSC stories that people shared did not necessarily occur within the session they attended. Rather, some spoke about how the remote program influenced the connections they had outside of the session, by having something to talk about with their family and friends. Other participants communicated that the session made them reflect on different approaches to healing, and other wellness resources offered at USask, potentially indicating their interest in accessing other supports. Other mental health-related topics were discussed or implied including, feeling supported, valued, reduced stress and depression, and increased happiness/uplifted mood. It was evident that participants benefitted from attending the remote program beyond the session itself. These stories demonstrate the value attendees place on the program.

D. Miscellaneous Topics

As interviews were semi-structured, there was sufficient space to discuss topics brought up by participants. Topics such as feeling awkward, Zoom experiences, and program appreciation/satisfaction were brought up by interviewees. Other topics in the interview guide included knowledge/awareness of therapy dogs and companion animals, and what replaces the physical touch aspect of the program. Desire to manage academic stress was a topic that was indirectly talked about by participants, and aligned with some literature on in-person therapy dog programming (Dell et al., 2015; Lalonde et al., 2020). As such, it is discussed here and was added to the program logic model as an exploratory outcome.

i. Knowledge/awareness of therapy dogs and companion animals: Participants reported varying degrees of prior knowledge about therapy dogs and/or companion animals. Two participants had worked with therapy dogs in the past (402, 405), while others had seen them in person before (400, 401, 403) or in movies (403). Those who had previously worked with therapy dogs did not experience increased knowledge or awareness of therapy dogs and companion animals due to the Zoom sessions they attended. Instead, they commented on their existing awareness:

“I was very aware of therapy dogs and what they’re for and what they do and the benefits they can bring” (402)

“I have a really strong background in therapy dogs and companion animals previous to these sessions, including the fact that one of my best friends has a social support animal. I know exactly what they can do and their value” (405)

The remaining participants indicated that they learned some new information, such as what happens in the session itself, reciprocal care, and the therapy dog training processes.

“Having the firsthand experience definitely informed me of it.” (400)

“Some of the different ways that the animals are trained to be supports and how that becomes reciprocal as well as the person cares for the animal and stuff like that” (400)

“I feel like I do have more knowledge of therapy dogs and the process they go through” (401)

“It definitely made me think about what are therapy pets, and how their training works” (403)

ii. Awkwardness within sessions: Some individuals revealed that they felt some “awkwardness” when attending the Zoom session. For instance, one student felt awkward about moving to another Zoom room when they were the only attendee in their current room:

“I thought of switching rooms because I wanted to see the other animals there, but because I was the only person there I felt like I should stay ‘cause then there’s going to be nobody in their room” (400)

A USask staff member felt awkward about not always engaging in the sessions with audio, further commenting on awkwardness as a result of attending for the first time:

“I guess awkwardness because I’m also working on other stuff and I can’t always have audio and stuff, so I’m in the chat” (401)

“Like with anything, the first time you try something you’re like... ‘What do I wear? What’s the right level of something that I need to do?’ This is kind of a similar thing where probably the second time [you] feel a little bit more confident going and you understand what’s expected.” (401)

Another participant felt more comfortable in a room where the conversation was general. In the other room, two acquainted individuals were conversing, so the participant felt excluded from the conversation:

“I would say that I was...more comfortable with one than another because in one room there were two people who knew each other, so it was just a conversation between them, so I felt a little excluded... It was really specific, but in the other room it was so general, so everyone could contribute to conversation.” (403)

iii. Zoom reflections: Zoom was a popular, broad topic discussed in attendee interviews. For instance, some quotes suggest that having the program over Zoom is better than nothing:

“The reality is this is how we are connecting now... [Pre-COVID, virtual meetings were] kind of in the realm of second-class meetings then. You prefer any other path, but now you prefer [Zoom] over a phone call or a text.” (400)

“It’s funny how Zoom calls, even that is helpful.” (401)

“In a lot of cases, our pets are living with our parents, so as a result it’s an opportunity to interact with an animal, even if it is a little bit odd in the sense that you’re trying to interact with them through a screen” (405)

Other Zoom-related discussions centred on the notion that PAWS Your Stress is one of the “good” Zoom experiences people have had:

“[The Zoom session] had grounded me in the desire for connectivity and that it’s not always in the physical realm...there’s a lot of positive experiences to be had in actual, but also virtual...human-to-human experiences.” (400)

“[PAWS Your Stress is] just more relaxed than a general everyday Zoom call... Most of my calls are just with work and they’re very official. I would say that was really nice.” (401)

“It’s the chance just to hang out with other people for a bit and to be doing something that isn’t school focused because most of the meeting that we’re doing right now, where we’re seeing other human beings, is focused on school.” (405)

While Zoom may not be individuals’ preferred choice of interacting with therapy dogs, participants provided evidence that there are some benefits to the remote format. One student noted the increased accessibility of the remote format, while another student who experiences sensory challenges commented on the ability to adjust sound when needed:

“When I’m busy even if there’s a PAWS Your Stress session I’m not taking an hour out of my day to go visit the dogs, versus my computer is literally always in front of me. I can take five minutes out of my day and log onto a Zoom call. I think it’s that timing aspect, as well as the accessibility.” (402)

“There’s some great benefits to me to using [Zoom] technology and that online modality where I can...make decisions... for example, about sound level. I can adjust that in real time online. I can’t do that in person.... Just because of the way that I prefer to interact with the world, I probably would gain benefits from the Zoom format.” (405)

Differently, a USask student mentioned that because PAWS Your Stress is currently remote, it is a reminder of the fact that we are currently experiencing a pandemic:

“I think the fact that it’s a Zoom session almost reiterates the fact that we’re still in a pandemic and things can’t be normal.” (402)

iv. Desire to manage personal stress: Attending the PAWS Your Stress program may lead attendees to continue thinking about stress management activities, such as attending more sessions or seeking out other wellness resources. While more evidence is needed to attribute these suggestions of stress management inclinations, the following quotes may suggest individuals’ desire to manage their stress:

P: If you reflect back on yourself, so you leave the session and you think ‘Wow, now I feel better’ or...whatever that feeling may be, that’s a learning point in some cases... you can see that ‘Oh, maybe it’s this therapy dog session that made me feel this way.’ I think that’s a learning point in some regard.

I: Let’s say they reflected that they felt better, what do you think they would take from that?

P: I think even just the fact that they’ll go again...Maybe if they knew other people that were struggling, they could also suggest to them... I do think that it would encourage them to go back or tell other people about the resource. (402)

“I think the remote program has made me more aware of resources and encouraged engagement with therapy dogs for the future” (402)

“I was in this really difficult place, so I would definitely do it again if I would ever find myself in that state.” (403)

“I’m hoping to get to a couple more this term” (405)

v. Replacement of physical touch aspect: A large component of the in-person PAWS Your Stress program was physically interacting with the dogs (e.g., petting and eye contact). Two out of five interviewees had visited the therapy dogs in-person. Interviewees were asked: *Do you think there is anything that replaces that physical touch aspect of the meeting in the Zoom sessions?* Responses varied, including those who thought there was nothing that could replace the physical touch aspect:

“I think that [physical touch is] such a big portion of it...I’m not sure how I would get that from a Zoom call exactly” (401)

“I know from [personal relation to therapy dogs] that physical touch is what helps you build a connection or could even be what the connection comes from. Like I said I don’t think I was able to build a connection after that one session, so I would say no, I don’t think there’s anything to replace that.” (402)

Two individuals spoke about the sensory experience that still exists within the Zoom setting:

“You do have a physical interaction when you observe it, it’s in your surroundings, it’s sensory. But you carry it inherently with you through believing what you observe. I would put it into that kind of experiential realm... you’re still seeing and hearing.” (400)

“More than anything else it’s the visual and it’s also the auditory experience. Because in a lot of cases in the context of Zoom you have a little bit more control over both the physical and auditory experience of the interaction.” (405)

Others noted that handlers facilitating connection replaced the physical touch aspect, or just being able to follow certain animal-handler teams over time:

“I think it’s the [handlers]... I think during Zoom sessions they were the facilitators of the connection.” (403)

“The ability to follow a particular animal and handler over time if you want using that pin tool, or just being able to watch how they’re interacting with each other” (405)

vi. Appreciation for, and satisfaction with animals, handlers, the PAWS Your Stress program, and the PAWS Your Stress team: Interviewees greatly appreciated different aspects of the remote therapy dog program. All spoke positively about the remote program itself and the PAWS Your Stress team:

"[It's] a nice thing to know that you are being supported for your mental health and your stress levels and just have those kinds of options available." (401)

"I do appreciate the work that goes into it." (401)

"You are constantly...able to interact with the dog opposed to a PAWS Your Stress in-person...if you're online you're constantly...able to see what's going on. You're not waiting for your turn." (402)

"It was a little ray of sunshine to my life during those really difficult times" (403)

"The people who change our rooms and helped us, they were amazing. They were so nice. They called us by our names and asked 'How are you? How was it?', so that was also really nice." (403)

"[The remote program] has provided me with a sense of community and with a continuing set of skills to help me interact in a world that doesn't always work for me." (405)

Others expressed appreciation for the volunteering handlers and animals:

"I would like to encourage the [handlers] to feel confident in sharing the stories that they've had with the animals and those experiences. Those are very meaningful. It was nice to hear those." (400)

"I felt like [the handlers] were really good at interacting with people that were there, showing different tricks that the dogs did, even things like enrichment activities...I felt good about their interaction level with people and how much people wanted to interact when other people were in there." (401)

"I have two cats of my own and I just love animals so much. Just seeing them sleep or make cute faces and see[ing] their [handlers] pet them. It was so nice." (403)

"When I went and everybody welcomed me by my name. Whenever someone joined the session they used our names to welcome us and ask us 'How's it going?' and... each time they introduced their pets to us. They were really great, they really included us in the conversation, nobody was left out." (403)

Takeaway: All participants were, to some degree, aware or knowledgeable about therapy dogs and companion animals before attending the Zoom session(s). However, most reported learning new information from conversations with the handlers. Some reported that attending the session could make others, or did make them, reflect on wellness resources, potentially resulting in attending the program again in the future.

While some expressed awkwardness they felt during the session, all were highly appreciative of the remote program, the PAWS Your Stress team, and the volunteering animal-handler teams.

In regards to Zoom experiences, interviewees indicated that Zoom sessions were a) better than nothing, b) one of the “good” Zoom experiences, and in some cases, c) beneficial in comparison to the in-person program (e.g., due to accessibility and control over sensory aspects).

One of the biggest differences with the remote version of the program is the physical touch aspect. Two participants did not feel that anything could replace this aspect in the remote program. Others suggested the sensory experience that still exists within the Zoom sessions, or the unique connection with handler-animal teams.

Qualitative Questionnaires and Interviews with Animal Handlers

All animal handlers who volunteered for at least one remote PAWS Your Session were invited to participate in a brief qualitative questionnaire through email ($n = 19$). The initial recruitment email was sent on March 1, 2021, with reminder emails sent on March 15 and 24 (See Appendix G). Eleven out of 19 handlers responded to the email questionnaire between March 1 – 29, 2021. Four PAWS Your Stress team members had volunteered as animal handlers at least once since September, 2020. Three out of four of these team members participated in the email questionnaire. See Appendix H for the brief email questionnaire.

The main purpose of the qualitative questionnaire was to understand handlers’ perceptions of the most significant changes attendees experience as a result of the remote PAWS Your Stress Zoom sessions. Once again, a modified version of the MSC technique was used to gather this data (Dart & Davies, 2003; Davies & Dart, 2004; see p.11 for more details about this technique). Secondly, handlers who volunteered at in-person and remote sessions were asked to share their thoughts on the differences in effects attendees might experience between the two event types.

Due to the limited time given for the student practicum evaluation, a small subset of the animal handlers who completed the questionnaire were contacted for follow-up one-on-one qualitative interviews via Zoom. To determine which handlers were invited to participate in qualitative interviews, a document was created that included each participant’s questionnaire response (identifying information removed), distinguished by a number and title. PAWS Your Stress team members were asked to read through these responses and note a) which three responses they deemed to be the most significant, and b) *why* they thought those responses were the most significant. Then, team members were provided with a SurveyMonkey link to anonymously vote on the top three most significant questionnaire responses, and share why they chose each

response. From this vote, four handlers were contacted for follow-up interviews, and three participated. One out of three interviewees were a PAWS Your Stress team member. A table in Appendix I provides the results of the MSC vote.

The goal of these interviews was to gain a more comprehensive understanding of handlers' thoughts on the effects that the remote PAWS Your Stress program has on attendees. Each follow-up interview was different, depending on what the participant shared in their questionnaire response. See Appendix J for a general interview guide.

Results

A. Handler Perceptions of Most Significant Change

The data was analyzed according to three recommendations in Davies' and Dart's (2005) guide to the MSC technique:

- **Analyzing stories for positive and negative changes**
- **Analyzing the changes mentioned in the stories against a logic model**
- **Thematic coding**

Details about these strategies can be viewed on page 13. Questionnaire responses ($n = 11$) ranged from 50 – 276 words, with an average word count of 132. The brief qualitative interviews with animal handlers ($n = 3$) ranged from 16 – 26 minutes. The analysis of questionnaire responses and interviews were combined, as the interview data was an extension of questionnaire responses. Table 5 outlines the PLM outcomes that the MSC story directly or indirectly addressed, as well as whether the reported change was positive, negative, or neutral.

Table 5⁴

Handler perceptions of MSCs for attendees organized by outcomes in the program logic models

Participant	Program logic model outcome	Evidence	Positive, negative, or neutral
01	Decreased feelings of stress* and/or anxiety AND Increased feelings of happiness* and uplifted mood	<ul style="list-style-type: none"> • <i>I think that Zoom Paws Your Stress acts to decrease stress by giving participants a welcome break from studies, Covid stress, etc, & fills that space with positive, calm vibes (puts a smile on their face) to take back with them into their lives</i> 	Positive

⁴ Grammatical errors in this table were not corrected when the quotes were taken from questionnaire responses (i.e., when the participant typed and submitted the response).

	Increased desire to manage personal stress	<ul style="list-style-type: none"> <i>We see many repeat visitors which suggests that they are reaping some benefit from the encounter.</i> 	Positive
02**	Decreased feelings of social isolation in the context of COVID-19* AND Increased sense of connection with humans and animals*	<ul style="list-style-type: none"> <i>I think a significant effect for visitors to Paws Your Stress on Zoom might be a sense of connectedness in this pandemic where people are likely to feel very disconnected</i> <i>I focused on connectedness because we're in a situation that we've never experienced before. Students who have been on campus and being physically on campus you would feel a sense of connection just with the buildings, with your classmates, with the students... Nobody can do that anymore. I think the connection is different, but it's equally important, perhaps more important right now during the pandemic because people I think do feel disconnected.</i> 	Positive
	Decreased feelings of stress	<ul style="list-style-type: none"> <i>Having a bit of social time just to talk about the weather and the dogs and how are your exams going and that kind of thing. I think that's stress relieving actually. A lot of people talk to relieve stress, but if they don't have anybody to talk to, they're not verbalizing things.</i> 	Positive
	Increased awareness of therapy dogs and companion animals	<ul style="list-style-type: none"> <i>International students joining in from other countries, they often ask about our pets and they often ask about breeds. They often ask about special treatment of pets or do you have to buy special food. That's kind of what I meant about a learning experience.</i> 	Positive
	Increased desire to manage personal stress	<ul style="list-style-type: none"> <i>We do know that not just students are attending and repeat attending. That makes me feel like they're getting something out of it.</i> 	Positive
03	Increased feelings of happiness and uplifted mood	<ul style="list-style-type: none"> <i>I see participants smile, engage in conversation, and often turn their cameras on even if for a short bit to say hi when we first greet them. So I see what I perceive as more joyful body</i> 	Positive

		<i>language once they see the dogs/handlers and others in the room.</i>	
	Increased sense of connection with humans and animals	<ul style="list-style-type: none"> <i>I've had a number of people say that they are looking for ways to connect socially during the pandemic, and that it is nice to see the dogs but it is also nice to see the humans.</i> 	Positive
	Decreased feelings of stress and/or anxiety	<ul style="list-style-type: none"> <i>People have said they've felt more relaxed and calm after spending some time with the dogs than they were before coming into the zoom room</i> 	Positive
04**	Decreased feelings of social isolation in the context of COVID-19*	<ul style="list-style-type: none"> <i>I think the effect that our Zoom sessions are having on individuals is to help them not feel so alone during this pandemic. It can be very lonely to be isolated in your home with no family/friends or even your pets.</i> <i>I think the other thing I seen is some of the students talking amongst themselves... I definitely think it gives them other people to relate to, so that they're feeling less alone, less isolated 'cause there's other people going through the same thing as they are.</i> 	Positive
	Increased sense of connection with humans and animals (<i>outside of the session</i>)	<ul style="list-style-type: none"> <i>It's like if you go to the coffee shop and ...you're listening to other people's conversations... sometimes you'll come away from that sitting at the coffee shop and being like 'Oh I heard this crazy story at the coffee shop today' and I think it's the same thing in these sessions where they can go back to someone and be like 'I watched the PAWS Your Stress team today and [dog] is such a goofball'</i> <i>I've definitely seen some people in the sessions talk to each other about their pets. Almost like making a Zoom friend where they can talk about things that they're going through.</i> 	Positive
	Decreased feelings of loneliness	<ul style="list-style-type: none"> <i>That's definitely the whole goal of the program, is to do whatever we can to</i> 	Positive

		<i>make people feel like they are less alone</i>	
	Increased feelings of happiness or uplifted mood	<ul style="list-style-type: none"> <i>What I always tell people is that if we could just bring a little bit of joy to anybody's life, whether it's to make them feel less lonely, or make them laugh, or make them smile at the end of the day, that's why we do what we do.</i> 	Positive
	Desire to manage personal stress	<ul style="list-style-type: none"> <i>We have a lot of people that come back. We have a lot of repeat visitors. I see some of the same people week after week and they're obviously coming for a reason</i> 	Positive
05	Increased feelings of happiness and uplifted mood*	<ul style="list-style-type: none"> <i>The most significant change that people experience as a result of attending PAWS Your Stress remotely is an increase in happiness and a decrease in stress. I notice that after a few minutes of watching the dogs and talking with the handlers, participants are more open, talking more freely and often smile and laugh at what the dogs are doing.</i> 	Positive
	Decreased feelings of stress*	<ul style="list-style-type: none"> <i>The most significant change that people experience as a result of attending PAWS Your Stress remotely is an increase in happiness and a decrease in stress.</i> 	Positive
06**	Increased sense of connection to humans and animals*	<ul style="list-style-type: none"> <i>I realize that it really does come to connection and disconnection. Disconnection from stresses, connection to something outside of ourselves/our lives, and connection to other people</i> <i>I don't think it's the dogs alone. There's something there with the handlers too. It's the way that they create a very welcoming space, the way that they really encourage people to be connected as well and to be connected with the others that are there, but also trying to connect them with the dogs too.</i> 	Positive

	Decreased sense of loneliness	<ul style="list-style-type: none"> <i>In terms of 'change'.... how are people different after they leave the sessions? Less lonely?</i> <i>Because of that connection, it's the opposite of disconnection which I think a lot of people are feeling, it's the opposite of loneliness which a lot of people are feeling</i> 	Positive
	Increased awareness of therapy dogs and companion animals	<ul style="list-style-type: none"> <i>In terms of 'change'.... how are people different after they leave the sessions... Better informed about dogs?</i> 	Neutral
	Desire to manage personal stress	<ul style="list-style-type: none"> <i>Because [students are] in school there's a lot of pressure, there's a lot with assignments and competing things that are supposed to be within their brains. I think it's related to stress and needing to...for a moment be in conscious awareness of something else. In that way, it's sort of like what meditation might do... by really figuring out what needs the attention and how much, and what you can tune out</i> <i>We all have a ton of things no matter who we are that have our attention on a daily basis. The fact that [attendees] take time away from those other things to come to the sessions, I probably would link that to stress management. Needing to walk away and take a break.</i> 	Positive
07	Increased sense of connection with humans and animals	<ul style="list-style-type: none"> <i>I think that people feel connected after attending. They see other students, the handlers, the dogs, etc.</i> <i>My guess is that they feel...more connected to USask</i> 	Positive
	Decreased feelings of loneliness	<ul style="list-style-type: none"> <i>My guess is that they feel less isolated, less lonely</i> 	Positive
	Increased feelings of	<ul style="list-style-type: none"> <i>I think that people feel connected after attending. They see other students, the handlers, the dogs, etc. So my guess is</i> 	Positive

	happiness and uplifted mood	<i>that they feel less isolated, less lonely, and more connected to USask. And as a result of this, they likely feel more happy.</i>	
	Increased feelings of support AND Increased sense of being valued by others	<ul style="list-style-type: none"> <i>I remember one person attended because she lost her dog recently, it passed, she showed ups a photo and we provided our condolences and support and asked some questions about the dog. Maybe she just wanted to come to a like-minded community at this time in her life.</i> 	Positive
08	Increased feelings of happiness and uplifted mood	<ul style="list-style-type: none"> <i>Smiles, positive memories... one participant said... she was excited to see [animal] on zoom, lots of participants share about their pets or experiences with animals</i> 	Positive
	Decreased feelings of stress and/or anxiety	<ul style="list-style-type: none"> <i>More relaxed... many participants have said that seeing our dogs has made their day and relaxed them and almost everyone thanks us for doing it</i> 	Positive
09	Increased sense of connection	<ul style="list-style-type: none"> <i>Willingness to be open and speak freely during sessions, in particular when we all talked about our own pets and how much we love our dogs. I think that's what makes these sessions so successful, some are missing their pets if they are living away from them and some are able to better relate to pet owners as this is a part of their lives they care deeply about.</i> 	Positive
	Increased desire to manage personal stress	<ul style="list-style-type: none"> <i>We began to see reoccurring visitors and I think the reason for this was the unique atmosphere that was created virtually.</i> 	Positive
10	Increased awareness of therapy dogs and companion animals	<ul style="list-style-type: none"> <i>Students did ask quite a few questions about the therapy dog breeds, habits, duties. I'm sure students got lots of new knowledge about therapy dogs out of the zoom sessions.</i> 	Neutral

11	Decreased feelings of stress AND Decreased feelings of anxiety	<ul style="list-style-type: none"> Decreased stress and anxiety. I've been told by students in the past (and even some handlers) that interacting with the dogs and each other has a calming effect 	
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*Indicates changes/effects that were the focus of the MSC response.

**Animal handlers who took part in a qualitative interview.

Several thematic codes (Davies & Dart, 2005) were created to represent the multitude of topics covered in handler questionnaires and interviews. Most codes fell under the broad theme of connection – a prominent topic in almost all questionnaire responses, and the primary topic in all three interviews. Other categories of responses include taking a break in a positive setting and repeat attendance.

i. Connection: Respondents considered different aspects of connection, such as connection specific to COVID, connecting without the use of audio and/or camera, peer connection, and connection to USask.

- Connection specific to COVID:** Some handlers commented on the possibility of attendees feeling a sense of connection from the Zoom sessions, specifically within the context of the COVID-19 pandemic:

“I focused on connectedness because we’re in a situation that we’ve never experienced before... I think the connection is different, but it’s equally important, perhaps more important right now during the pandemic because people I think do feel disconnected... It’s different, but you still wanna connect with people” (02)

“I’ve had a number of people say that they are looking for ways to connect socially during the pandemic” (03)

*“I: Do you think that the connection piece is solely attached to COVID, or do you think it’s maybe a combination of other things too?
P: ... I really do think it’s pandemic-specific.” (04)*

- Connecting without the use of audio and/or camera:** Because connection was the central topic in all three interviews, these handlers were asked if they thought attendees could still experience a sense of connection without using their camera and/or audio. All thought connection was a possibility in these scenarios, describing the connection in different ways:

“I think they must [experience a sense of connection] or they wouldn’t be there. They can see us and they can see what’s important is our dogs...I think a lot of people keep their cameras off because they don’t have strong wifi.” (02)

“When they don’t have their cameras on or speak during the session, what we quite often hear after the fact, or even as they chat, is that they’re watching. I

think it just gives them, it's like when you sit on campus and you hear other people talking, you're being part of a conversation, but you're not really part of the conversation, but still overhearing about what other people are doing." (04)

"We get [messages] in the chat box all the time about how it was so nice to be able to just sit there, where they say 'Thank you it was so nice to watch your pets today' We do have some where they're not chatting and they don't have their cameras on, but they are sometimes sending random questions... So they are definitely engaged, but they're not having to constantly be engaged." (04)

"Not all of them are really engaged. It seems like a lot of them have it on in the background when they're doing other work... My suspicion is that they're doing connection in a way that is kind of an afterthought in the sense that, I feel like there's some people that are probably just preoccupied with other things, but they still want a little bit of connection so that's why they have it on in the background... I also think some people are just shy, so maybe the dogs do have their full attention, but we don't know that." (06)

- **Peer connection:** Connections within the Zoom session are not just made between the attendee and animal-handler team. Two handlers shared examples in which attendees may have made connections with other attendees:

"Some of the students [talk] amongst themselves. Especially now where they aren't on campus meeting new friends and stuff like that, I've definitely seen some people in the sessions talk to each other about their pets. Almost like making a Zoom friend where they can talk about things that they're going through. Last week we had someone talking about how [they] couldn't imagine how hard it would be to be a first-year student and then they got talking about their exams. I definitely think it gives them other people to relate to." (04)

"I've been told by students in the past (and even some handlers) that interacting with the dogs and each other has a calming effect" (11)

- **Connection to USask:** Two handlers identified the possibility that the Zoom session offer a space to connect with USask, especially due to the remote learning that has been in effect for over a year now:

"Being physically on campus you would feel a sense of connection just with the buildings, with your classmates, with the students... You develop that connection just by physically being there... You feel like 'I'm connected to this place, I belong here...' I think, then, the virtual sense of connection is going to be even more important. It's different, but you still wanna connect with people. You wanna feel a connection with the University of Saskatchewan." (02)

"I think that people feel connected after attending. They see other students, the handlers, the dogs, etc. So my guess is that they feel less isolated, less lonely, and more connected to USask." (07)

ii. Taking a break in a positive setting: Participants acknowledged that the remote sessions allow people to “PAWS” stressful things in their lives in order to spend time in a positive setting.

“I think that Zoom Paws Your Stress acts to decrease stress by giving participants a welcome break from studies, Covid stress, etc. & fills that space with positive, calm vibes (puts a smile on their face) to take back with them into their lives” (01)

“People who don’t have pets love to see the dogs, people who do have pets love to see the dogs. It’s just such a non-threatening atmosphere for people to join in and they don’t have to talk if they don’t want to.” (02)

“[The Zoom sessions] provide a break for people online from staring at work/homework... because everyone’s feeling a little...whether it’s isolated, or alone, or just overwhelmed in general and just needing that break. Something good in their life in the day.” (04)

“[Students are] in school there’s a lot of pressure, there’s a lot with assignments and competing things that are supposed to be within their brains. I think it’s related to stress and needing to totally for a moment be in conscious awareness of something else. In that way, it’s sort of like what meditation might do” (06)

“[The handlers] create a very welcoming space, the way that they really encourage people to be connected as well and to be connected with the others that are there, but also trying to connect them with the dogs too” (06)

“We began to see reoccurring visitors and I think the reason for this was the unique atmosphere that was created virtually.” (09)

“Our interactions also provide a mental break for the students, allowing them to focus their attention away from their schoolwork and recharge.” (11)

iii. Repeat attendance: Multiple handlers commented on those who repeatedly attend the scheduled Zoom sessions, noting that there must be a reason they repeatedly participate. This may suggest a lasting effect the remote program has on attendees.

“We see many repeat visitors which suggests that they are reaping some benefit from the encounter.” (01)

“We do know that not just students are attending and repeat attending. That makes me feel like they’re getting something out of it. That they’re feeling some connectedness.” (02)

“I see some of the same people week after week and they’re obviously coming for a reason...Even if they’re not chatting, they’re still coming back... For me, you have to have a sense of belonging or getting something from the session to want to come back or else you wouldn’t. And it has to do something for you. It can’t just be like ‘Oh I look at cute puppies and dogs” (04)

“For the people that regularly come back, I think it’s dogs and it must be the handlers too because think about any time you go to an event, if you have an unpleasant experience

you're probably not going to go back...It's the way that [the handlers] create a very welcoming space, the way that they really encourage people to be connected" (06)

"We began to see reoccurring visitors and I think the reason for this was the unique atmosphere that was created virtually." (09)

Takeaway: Although the MSC approach encourages individuals to choose one type of significant change/effect, 10 out of 11 handler responses alluded to multiple changes attendees may experience as a result of accessing the remote program. Most often, handler responses indicated that attendees may experience: a) increased sense of connection with humans and animals, b) increased happiness and uplifted mood, and c) decreased stress and/or anxiety. Other responses commonly suggested that people might have a desire to manage personal stress, indicated by their repeat attendance. Less often, handlers thought students might increase their awareness of therapy dogs and companion animals, or feel a) decreased loneliness, b) decreased isolation due to COVID-19, c) increased sense of support, d) a sense of being valued by others.

It is difficult to compare these perceptions to the perceptions of the attendees who participated in interviews for two reasons. First, only five attendees participated in interviews, which does not provide a general understanding of the MSC most attendees experience. Second, the interviewed attendees had only been to one or two remote sessions, which may limit the extent to which they experienced certain outcomes. Nevertheless, increased feelings of happiness, desire to manage personal stress, and connection were overlapping outcomes discussed by the two participant groups.

Together, this data indicates the importance and advantage of connection that is specific to the remote version of the program.



B. The Effects of PAWS Your Stress In-person versus on Zoom



Ten out of 11 handlers responded to the following questions via email:

Do you think there are differences in the effects attendees experience as a result of attending PAWS Your Stress in-person versus remotely via Zoom? If so, what are the differences? Why do you think there are differences?

Eight out of 10 handlers had volunteered at both the in-person and remote PAWS Your Stress sessions, while the other two had attended the in-person sessions and volunteered in at least one remote session. Responses ranged from 137 – 635 words, and were on average 233 words. Though the question focused on the differences in the effects attendees experience as a result of the Zoom sessions, handlers also commented on differences that they and their dogs

had experienced too. The following responses are organized into perceived differences in outcomes for students, differences for handlers, and differences for therapy dogs.⁵

i. Perceived differences in effects attendees experience in-person versus via Zoom: The most common difference between the in-person sessions and Zoom sessions is that attendees are not able to physically interact with the dog. Almost all respondents commented on the lack of physical interaction with the dogs in the Zoom sessions, and some went on to further explain how this may affect attendees:

“The added benefit of stroking fur is well known to reduce stress... Both methods I believe achieve stress reduction, but in different ways and to different degrees.” (01)

“They cannot get that same tactile effect and release of emotion, tension and neuro-chemicals from watching the dogs on a screen.” (02)

“Everyone misses out on the interactions between the therapy dogs themselves. When in person, the dogs often interact, even in small ways, and I think people enjoy that.” (03)

“Being able to physically pet the dog is its own de-stressing tool if we are considering improving student mental health and stress. This aspect is definitely lost [on Zoom].” (09)

“The actual sensation of petting a dog has been shown to decrease stress and anxiety, which is just not possible via zoom.” (11)

Handlers reflected that the positive effects of the program on attendees was more visible during the in-person sessions. The same effect is not noticed as much on Zoom:

“Most of the participants leave the in-person visit visibly uplifted” (01)

“When attending in person on campus, you can witness and even feel the stress release and the joy students get from petting and hugging the dogs” (02)

“I’ve seen a lot less emotion online than I have in person.” (03)

“Even an untrained person like me can actually see and feel the stress going out of people during in-person visits” (08)

Some handlers noted more positive differences, such as more connection and different kinds of connection in the remote sessions:

“Participants are able to share their own animal companions with us, which doesn’t happen in person and this I feel opens up an easier conversation route, because the companion is often right there.” (03)

“Having the program online allows more dogs and other animals to participate... But the access to a wider variety of animals...again, coming back to connecting with nature and its importance.” (06)

⁵ Grammatical errors in this section were not corrected when the quotes were taken from questionnaire responses (i.e., when the participant typed and submitted the response).

“Virtual visits were still successful within their capacity to make connections...and this was incredibly important in these isolating times” (09)

“The biggest difference I feel is that there are more human interactions for Zoom visit vs. more dog and human interactions for the in-person visit.” (10)

In contrast, some of the more negative effects of the Zoom sessions, compared to the in-person sessions, may be “Zoom fatigue” (feeling exhausted from regularly being on videoconferencing platforms such as Zoom; Bailenson, 2021) and less deep/close connections with individual attendees:

“Online, there is the issue of zoom fatigue” (06)

“I was able to have deeper conversations with people in person than online...However, I think this could be different if we had one handler/team per zoom room and this is a change I’d advocate for. I know I was able to engage with students and staff more personally when we had our own little part of the floor even in the big therapy dog events. You can have those little quiet conversations which is hard to do with multiple teams in a zoom room.” (03)

“There is less individual attention to the participant when we interact between handlers to make sure there is always conversation. The handler chatting makes it easier to just observe for the participants but the handlers have less chance to more closely interact with a participant.” (08)

One handler wrote about the opportunity to learn more about the therapy dogs through Zoom, compared to in-person:

“I find that online they get to know a bit more about the dogs life in general and get to hear a bit more background information on the dogs. When meeting in person we just focus on the immediate (AH! There’s a puppy) whereas online we are forced to talk about things that are engaging for the students, and that can include weird quirks, funny stories, etc.”

Finally, some handlers stated that the remote program was not intended to be the same as the in-person program. Instead, the program is inherently different, but attendees can still experience similar effects through different mechanisms:

“I don’t think it is important to compare, it is just different... They come to the same outcomes, but the paths to get there can be quite different.” (07)

“I think it’s important to consider that this change in setting was never going to be the same and the virtual visits were still successful within their capacity to make connections.” (09)

“I think that the zoom sessions are still helpful in mitigating stress and anxiety, however the in-person sessions seem to be more effective and have more participants...it is a great alternative for the time being.” (11)

ii. Differences experienced by handlers in-person versus via Zoom: The remote PAWS Your Stress sessions are different for everyone who attends them, including the handlers. In the Zoom sessions handlers take on a different role, facilitating the Zoom space. Some participants commented on these aspects:

"[On Zoom] it is left to the handler to do provide all of the 'therapy'." (01)

"I think the handler has a much more engaged role. I know as a handler it is more on me/my shoulders than when we are in person and the dog takes centre stage. It is more tiring in person for the dog and less tiring on screen for the dog. And opposite experience for the handler (more tiring on screen and less in person)." (07)

"In some ways being online is a bit more awkward for me as a handler (body language is harder to read, some people leave cameras off, hard to quietly engage someone without the whole room knowing you are doing that)" (03)

"Hav[ing] those little quiet conversations... is hard to do with multiple teams in a zoom room." (03)

iii. Differences experienced by therapy dogs in-person versus via Zoom: Almost all respondents reflected on differences their animal experienced on Zoom compared to in-person. Handlers shared a wide range of effects, such as less joy, affection, attention, and love on Zoom. As well, dogs may have troubles sitting in front of screens or seem bored:

"The dogs definitely experience a difference because they are dogs who like to be petted and with the virtual sessions, the only petting they get is from their owner - and that's good but they are stimulated by and enjoy other people and they are missing that." (02)

"[Therapy dog] doesn't get the reward/benefit of all the affection from other people. [Therapy dog] really misses all of those hands...I know he is hungry for other people's attention/affection and he took a noticeable downturn when all of the in person visiting...he had almost a month where he seemed really out of sorts which both me and my partner attribute to the change in his schedule and sense of adventure in meeting others." (03)

"[Therapy dog's] attention span is shortened online [compared to] in-person." (03)

"Not all dogs are comfortable in front of the computer/phone, so you have to train them to be comfortable with it." (06)

"[Therapy dog] has learned he gets cuddles and attention from me for an hour but he is sometimes bored. There is absolutely no question the in-person visits are better for the dogs." (08)

"I know [Zoom] is not as enjoyable for the dogs either (at least for mine, he didn't like sitting in front of a computer very much)." (09)

More positively, the dogs may be less tired in the Zoom sessions compared to the in-person sessions, and are in a familiar environment when they volunteer via Zoom:

"It is more tiring in person for the dog and less tiring onscreen for the dog." (07)

“During zoom sessions, therapy dogs are at home. They are in a very relaxed and familiar environment. Some of dogs sleep through the session.” (10)

Takeaway: Inevitably, remote programming and interactions anywhere look different than they used to in person. PAWS Your Stress is no exception. Attendees do not get to experience wellness outcomes from petting, touching, or hugging a therapy dog. Further, handlers do not visually notice the same positive influence on attendees during Zoom sessions compared to the in-person sessions. Other more negative effects for attendees on Zoom, compared to in-person, included feeling Zoom fatigue and less ability to have deeper connections. More positively, some handlers felt they were able to connect with students more, especially within the isolating context of COVID-19.

Handlers also shared differences they and their animals experienced on Zoom. The responses highlight multiple challenges to volunteering remotely, and a preference for the in-person program. While the remote program offers some benefits over the in-person program, it is not free of obstacles.

Conclusions

A. Summary

Nine remote PAWS Your Stress sessions took place via Zoom from January 28 – April 29, 2021. Most sessions had 6 animal-handler team volunteers and six people who attended the session. Approximately thirty-two unique individuals attended the session, which were mostly students. All sessions had at least one peer health mentor present.

To assess short-term outcomes of the remote version of PAWS Your Stress, a utilization-focused outcome evaluation was completed. Team members were encouraged to provide feedback and ideas at each stage in the evaluation in order to ensure that the evaluation would be useful to them. Together, the results reveal:

- Attendees reported feeling comforted, supported, and happy. Some attendees also reported reductions in feelings of depression and anxiety. In relation to COVID-19, almost all participants said the session(s) helped them feel a) less isolated/alone, b) an increased sense of connection, and c) relieved from the uncertain COVID-19 context. One participant defined connection as building a relationship; thus, they did not experience a sense of connection. Although all participants only attended one or two sessions, each discussed the most significant changes they experienced as a result of the remote program. These changes were highly individualized and addressed a variety of short-term program outcomes, such as feeling supported and decreased feelings of depression. Some individuals reflected on how the sessions helped them facilitate connections outside of the session.

- Using examples, most handlers thought that attendees experienced a sense of connection, decreased stress and/or anxiety, happiness, and a desire to manage personal stress. When asked about differences in effects for attendees in-person versus on Zoom, most mentioned that attendees might not experience stress relief in the same way without being able to physically interact with the dog. Handlers also commented on changes that they and their animals have experienced.

B. Limitations

Though this evaluation was completed using rigorous methods (i.e., multiple sources of qualitative data), there are important limitations to consider. Table 6 outlines three limits to the present evaluation and mitigation strategies for each.

Table 6

Evaluation Limitations and Mitigations

Category	Limitation	Mitigation
Timeline	Time was limited due to the evaluation being conducted within a student practicum. Thus, there were limits to the amount of data that could be collected and analyzed.	The qualitative approach to data collection allowed for detailed data to be obtained within the three-month timeframe.
Interview Sample Size	Only 5/25 attendees who provided emails between December 2020 – March 2021 agreed and took part in a qualitative interview.	While this number is small, participants were thorough in their responses by providing rationale behind their thoughts and sharing stories that showcased their experiences. In a team meeting, it was decided that this sample size was sufficient for the current purposes of the evaluation.
Data Triangulation	Due to the small sample size of the attendee interviews, it was difficult to make comparisons of MSC stories between attendees and handlers. Various logic model outcomes were addressed in both sets of MSC data, however no specific outcome stood out in the attendee MSC data. Instead, MSC stories tended to address different, individualized aspects of peoples' experiences. More data is needed to allow for a more thorough comparison.	The handler data addressed four prominent logic model outcomes: a) increased sense of connection with humans and animals, b) increased happiness and uplifted mood, c) decreased stress and/or anxiety, and d) desire to manage personal stress. Each of these were addressed at least once in attendee MSC stories, suggesting similar outcomes and perceived outcomes between attendees and handlers.

C. Evaluation Recommendations

Evaluation recommendations are suggestions created for the use of program stakeholders based on the analyzed data. The following recommendations are provisional, especially as this evaluation was conducted within the uncertain, ever-changing context of the COVID-19 pandemic. Thus, team members are encouraged to consider the recommendations in Table 7 with the fluctuating circumstances in mind.

Table 7
Evaluation Recommendations

Category	Recommendation
<p>Program targets/ expectations</p>	<p>1. Because the remote/online version of the program was implemented in an exploratory manner due to the COVID-19 pandemic, benchmarks for targets were not specified. Now that there is two semesters' worth of experience and data to base program targets on, the team may find it useful to</p> <p style="text-align: center;">generate a list of benchmarks or goals for the remote/online versions of the program.</p> <p>Benchmarks or goals may include aspects such as the number of attendees or handlers (or attendee-handler ratios) per Zoom session, or the involvement of peer health mentors. Goals could also concentrate on the activities that take place within the Zoom sessions. In regards to the online program aspects, benchmarks or goals could address the number and type of social media posts, website traffic, number of followers, and advertising efforts.</p> <p>2. Develop a plan to regularly evaluate the benchmarks or goals that were created by the team.</p> <p>Consider questions such as: Who will evaluate the benchmarks? Do team members need training to assess such information? How often should this data be collected? Evaluating benchmarks will allow the team to critically think about the existing goals and the purpose of the different program aspects (e.g., the purpose of the remote sessions versus online component). Team meetings may be helpful to address the extent to which benchmarks or goals are met, and to add, change, or remove certain targets as the program changes over time.</p>
<p>Advertising</p>	<p>3. Prioritize email advertisement efforts, such as placing advertisements in USask student e-newsletters, and USask PAWS announcement ads.</p>

	<p>According to interview data from the process evaluation, most participants learned about the program, and viewed program advertisements, through email or on PAWS. Participants saw advertisements less often on the social media pages. Addressing this recommendation may result in an increased awareness of the program in the USask community.</p>
	<p>4. Consider creating individualized email advertisements to send to various USask departments.</p> <p>In the process evaluation, two interviewees suggested creating specific PAWS Your Stress emails a) to “<i>more directly show what [the program] is</i>” and b) so that the sessions “<i>would get noticed faster.</i>” Creating a specific email may improve visibility of email advertising and allow the USask community to learn more about what the program entails, compared to including the advertisement in an email with other events/activities listed.</p>
	<p>5. To align with the finding that connection is a salient, important component of the online/remote version of the program,</p> <p>emphasize the opportunity for connection in program advertising as a way to engage potential attendees.</p> <p>Previous advertisements let participants know that their level of engagement is up to them (e.g., using audio and camera on Zoom is optional), which is still important for people to know. However, it may also be desirable to come up with advertising slogans that capture the feelings of connectedness attendees may feel when attending the sessions.</p>
	<p>6. In alignment with the team’s desire to grow the PAWS Your Stress social media following and website traffic, it would be helpful to</p> <p>brainstorm a list of ideas to advertise the team’s website and social media.</p> <p>For example, a suggestion from the process evaluation was to include social media handles on virtual therapy dog posters that are distributed. From there, strategies can be employed to implement this list of ideas and improve overall awareness of the PAWS Your Stress program.</p>
<p>Social Media (online component)</p>	<p>7. As discussed in a team meeting, an increased following on social media is desirable, for example, to include in grant applications for program funding. The PAWS Your Stress team</p>

	<p>invested in social media training to become more aware of strategies to improve website traffic and social media following and engagement.</p> <p style="text-align: center;">Establish a social media strategy for PAWS Your Stress utilizing the tips and knowledge gained from the training sessions.</p> <p>Social media coordinators may wish to create goals for website traffic and social media following and engagement. This strategy may also involve planning quantity and quality of social media posts to align with personalized recommendations from the social media training.</p> <hr/> <p>8. Based on the social media strategy and the established goals/plans of the online program,</p> <p style="text-align: center;">create a social media data management plan that will allow social media coordinators to assess the extent to which social media goals are being met.</p> <p>Filling out a regular (e.g., weekly or monthly) data management form will benefit the team’s online efforts by illustrating how goals are being achieved. These forms may also prompt the team to reassess current goals, set new goals, and acknowledge which strategies are working or require more attention.</p> <hr/> <p style="text-align: center;">9. Continue offering the program via social media efforts throughout the summer months (May – August).</p> <p>Feedback regarding the PAWS Your Stress social media platforms was provided in the process evaluation interviews with attendees. The social media platforms and posts are thoroughly enjoyed and appreciated by the attendees. By offering the online program throughout the summer months, USask and broader community members can continue to benefit from engaging with therapy dogs and other animals from a distance.</p>
<p>Zoom sessions (remote component)</p>	<p style="text-align: center;">10. Establish a plan to include Zoom sessions in future program endeavors.</p> <p>Based on a current meeting, the team was undecided on continuing the use of Zoom sessions in the future. The current data suggests that the Zoom sessions are valuable and that there are numerous benefits specific to the remote version of the program.</p> <ul style="list-style-type: none"> ○ <i>Value:</i> Three out of five interviewees indicated that when the program resumes in-person, they would attend the program in-person <i>and</i> remotely.

	<ul style="list-style-type: none"> ○ <i>Value:</i> Evidence of several logic model outcomes for attendees (e.g., comfort, support, connection, uplifted mood, relaxation, and decreased depression/loneliness and anxiety). ○ <i>Value:</i> There are multiple repeat visitors, people who report positive effects that last beyond the duration of the session, and people who recommend the Zoom sessions to others. ○ <i>Benefits for attendees:</i> Accessibility; anonymity; get to see more dogs as well as a variety of animals; ability to control auditory and visual experience; convenient for those with allergies; favorable for those with social anxiety; seeing dogs in their home atmosphere; can take up less time than attending in-person <p>It may be helpful for the team to specifically discuss issues such as a timeframe, frequency of visits, what future Zoom visits could feasibly look like, who has the capacity to contribute to such efforts, and what the advantages and disadvantages would be for the animals, the handlers, and the team itself. In the process evaluation, the handlers were least likely out of program stakeholder groups to report being “very satisfied” with the sessions. Thus, it may be helpful to continue collaborating with them to come up with a future plan.</p> <p>11. Consider offering one-on-one bookings with a therapy dog, or having one handler per Zoom room.</p> <p>In the outcome evaluation, some handlers shared a drawback of the remote version of the program. Specifically, it is more challenging to connect with attendees on a deeper level, such as when handlers outnumber students in the Zoom rooms. Another handler felt they were not needed when the dogs outnumbered the attendees. If this is a feasible approach to the Zoom sessions, program coordinators could come up with a plan to facilitate these booking sessions, especially based on other therapy dog booking initiatives that have already taken place this semester.</p> <p>12. Over the past two semesters, PAWS Your Stress Zoom sessions were one hour in length. Process evaluation data revealed that some handlers desired shorter sessions, as it is difficult to keep their pets in front of the screen for an hour. The team began offering handlers the option to book 30-minute timeslots within the one-hour session. In the outcome evaluation, some handlers still advocated for overall shorter sessions. It may be useful for the team to</p>
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	<p>meet with handlers to collaboratively discuss a procedure for the length of sessions that would benefit all program stakeholders.</p>
	<p>13. Develop a strategy to share program feedback with handlers.</p> <p>One handler shared a desire to have access to feedback attendees provide about the Zoom session(s) they attended. This may assist handlers, especially those who expressed hesitation about the beneficial effects of the remote program, in feeling confident that their remote efforts are helping those who attend. This strategy may include creating infographics or presentations for the handlers based on evaluation findings. As well, this may simply involve saving comments attendees post in the chat box or share with team members, then sending an email to handlers with this feedback.</p>

D. Future Directions

The PAWS Your Stress team has engaged in multiple evaluation efforts, including the current process and outcome evaluations. The following points suggest future directions for the team in order to continually develop, evaluate, and improve PAWS Your Stress initiatives:

- 1) The team may consider or address the evaluation recommendations listed in Table 7.
- 2) The team could publish the present evaluation results. For example, they could consider publication in an evaluation journal, highlighting methodological processes (e.g., program logic model creation and use of the MSC technique). Publishing the qualitative results in a journal that accepts research on animal-assisted interventions may also be of interest.
- 3) The team may engage in knowledge translation activities to highlight any of the findings included in this report (e.g., connection, COVID-related findings, overall benefits to the remote program, etc.). This could include the creation of one-page summaries, infographics, or videos. Potential audiences may include USask students and the rest of the USask community, those within the St. John Ambulance therapy dog program, social media followers, and other organizations interested in animal-assisted interventions.
- 4) In terms of further evaluation, the team could pursue an evaluation of remote program outcomes for the volunteering animal handlers. The PLM for handlers in Appendix C could guide the evaluation of handler outcomes. As the PAWS Your Stress team is highly aware of and concerned with issues of animal welfare, the team could also conduct an observational evaluation of outcomes for the volunteering animals. With the help of experts in animal behavior, future comparisons could be made between the animals' behaviors in in-person and remote PAWS Your Stress sessions.
- 5) The present outcome evaluation was focused on the remote portion of the PAWS Your Stress program. The team may wish to conduct process and outcome evaluations that specifically focus on the online components (e.g., website, YouTube, social media), as this could help them understand the unique effects people experience in relation to the online initiatives.

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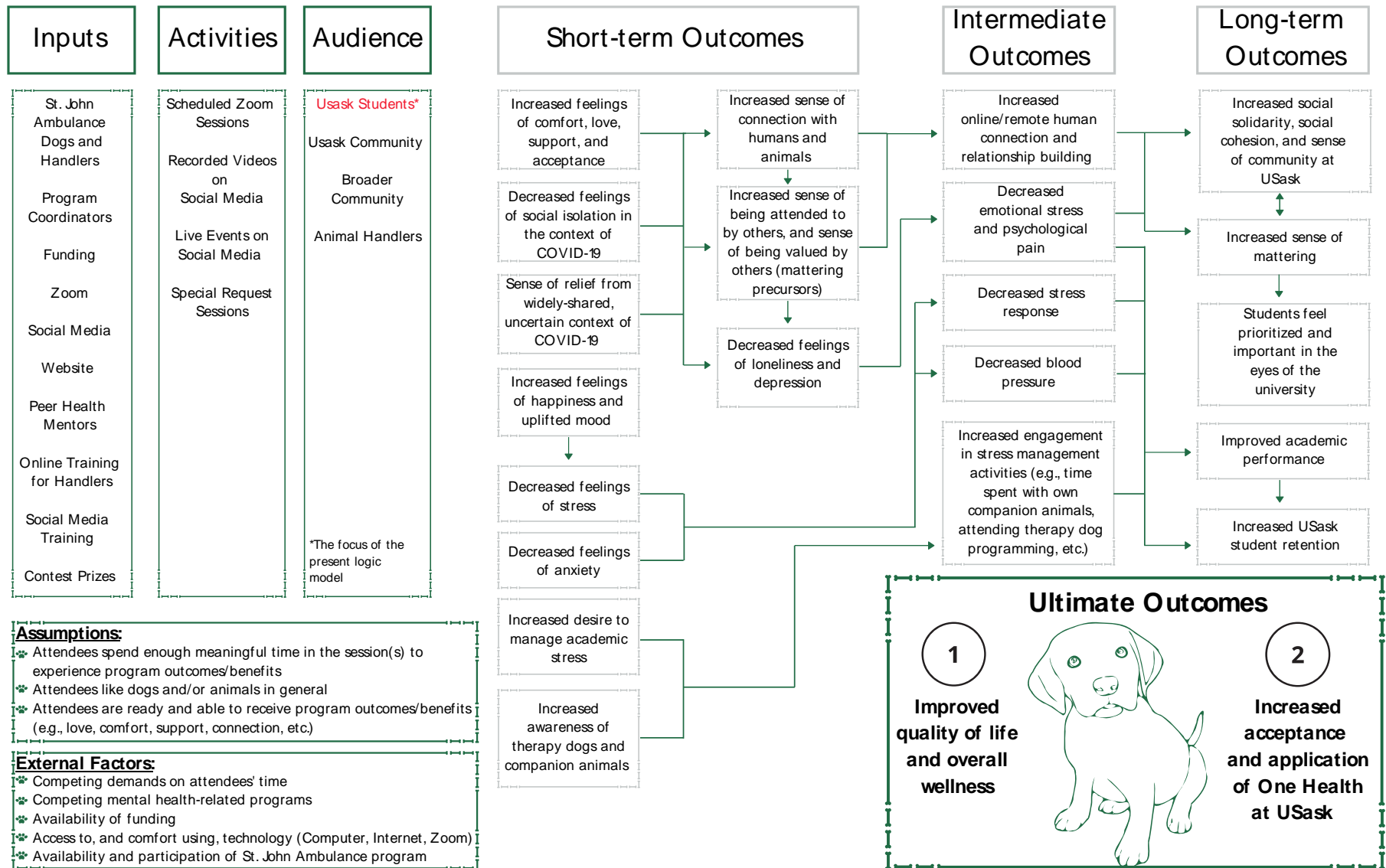
Appendix A

Program Logic Model: USask Students



PAWS Your Stress Program Logic Model

Remote/Online Version: Students



Short-term Outcomes

1. Increased feelings of comfort/love, support, and acceptance

As defined by Dell et al. (2015), comfort/love in the context of therapy dog programming means experiencing “reciprocal love” (p. 332) and “positive feelings” (p. 333) from interactions with therapy dogs. On the other hand, support is described as “destressing and relaxing” (p. 333) as a result of therapy dog visits. Finally, acceptance can be understood as “engaging and accepting interactions” (Hart, 2010, p. 76) with the therapy dogs.

In-person therapy dog sessions provide students with feelings of comfort/love, support, and acceptance (Dell et al., 2015; Lalonde et al., 2020; Ward-Griffin, 2018). Feeling comforted/loved, supported, and/or accepted by the therapy dogs and/or handlers creates spaces where students feel connected with other beings, attended to by others, and important to others (Dell et al., 2015; Lalonde et al., 2020; Rosenberg & McCullough, 1981). While this research focuses on the role the therapy dogs play in promoting these feelings, we currently need to consider the novel role animal handlers play in the remote space. These feelings may also result from interacting with, or listening to, other humans in the session.

2. Decreased feelings of social isolation in the context of COVID-19

Physical distancing mandates put in place to limit the spread of COVID-19 may also inhibit social interactions. The PAWS Your Stress Zoom sessions provide an opportunity for students to interact with other humans (handlers, peer mentors, and other attendees), specifically within a context that otherwise limits such interactions. Preliminary observations suggest that remote connections during the COVID-19 pandemic improve levels of wellbeing and reduce feelings of loneliness (Kotera, 2020). Further, companion animals can minimize feelings of isolation and loneliness during the pandemic (Bussolari, 2021). We suspect that students will experience decreased feelings of social isolation when they connect with other humans and animals during the session, by watching the dogs and using the microphone or chat box features on Zoom.

3. Sense of relief from widely shared, uncertain context of COVID-19

The COVID-19 pandemic has brought forth many uncertainties (e.g., in relation to length of the pandemic, viral spread, the economy, personal finances, timing of vaccinations, etc.). Evidence from previous evaluation of the remote PAWS Your Stress program suggested that the Zoom sessions provide an opportunity to take a break, especially because social interactions are currently limited. We exploratorily hypothesize that the opportunity to take a break from other daily activities by attending PAWS Your Stress remotely will provide students with a sense of relief from the uncertain COVID-19 context.

4. Increased feelings of happiness and uplifted mood

Happiness is a broad, interdisciplinary, and contextual construct that is not easily defined (Zevnik, 2014). Presently, happiness and uplifted mood can be thought of as increased positive affect from remotely connecting with other humans and animals. The COVID-19 pandemic may factor into individuals’ happiness levels (Greyling, 2020; Yang & Ma, 2020), especially considering increased physical and social isolation due to lockdown restrictions, and a variety of uncertainties about the virus, lockdown mandates, and vaccinations.

University students tend to demonstrate a relationship, whereby increased scores on measures of happiness are associated with decreased scores on perceived stress (Sarıçam, 2015; Schiffrin & Nelson, 2010). In-person therapy dog programs provide students with increased happiness and uplifted mood (Crossman et al., 2015; Dell et al., 2015; Grajfoner et al., 2017; Marcus et al., 2012; Ward-Griffin, 2018).

5. Decreased feelings of stress

Stress specific to university students may be a consequence of “academic overload, pressure to succeed, competition with peers, financial burdens, and concern for the future.” (MacKean, 2011). In addition to academic stress, the COVID-19 pandemic has been a source of stress for university students (Elmer, 2020; Hamza, 2020).

Self-reports from university students relay that in-person therapy dog programming reduces their stress levels (Barker et al., 2016; Binfet, 2017; Binfet et al., 2018; Dell et al., 2015; Lalonde et al., 2020). Further, companion dogs have reportedly contributed to reduced feelings of stress during the pandemic (Bussolari, 2021). Decreased stress (and stress-response, a behavioural outcome) may result in improved academic performance, which in turn, may improve academic retention (Akgun et al., 2003; Stewart et al., 2015; Westrick et al., 2015; Westrick et al., 2020).

6. Decreased feelings of anxiety

Anxiety can involve cognitive, physiological, and behavioral/physical symptoms, such as feeling tense, worrying, increased blood pressure, and rapid heart rate (American Psychological Association, n.d.a). According to some measures and self-reports, university students have a higher likelihood of experiencing anxiety (Eisenberg et al., 2007; Evans et al., 2018; Robinson et al., 2016) when compared to the general population (O'Donnell et al., 2015; Remes et al., 2016). Student-reported anxiety has also increased since before the onset of the COVID-19 pandemic (Hamza et al., 2020; Elmer et al., 2020).

Accessing in-person therapy dog programming can benefit university students by reducing levels of anxiety (Crossman et al., 2015; Grajfoner, 2017), and having companion animals has reduced feelings of anxiety during the pandemic (Bussalori et al., 2021). Experiencing anxiety can affect university students' academic performance (American College Health Association, 2019; Eisenberg, 2009; MacKean, 2011; Owens, 2012), whereby less anxiety is associated with better academic performance. Further, lower scores on general mental health measures are associated with poorer university retention rates (Hjorth et al., 2016; Hilde Ramsdal et al., 2018).

7. Increased desire to manage academic stress

As mentioned previously, students have experienced an increase in stress levels due to the current pandemic (Elmer, 2020; Hamza, 2020). PAWS Your Stress is a university-based initiative primarily aimed at students that provides a space to minimize academic stress. Taking part in such programs can be a current and future reminder for students to take breaks and manage the stress they may be feeling (Dell et al., 2015; Lalonde et al., 2020). Increased desire to manage academic stress may contribute to increased engagement in stress management activities, as hypothesized in psychological models such as the information-motivation-behavior model (Fisher & Fisher, 1992; Fisher et al., 1994).

8. Increased awareness of therapy dogs and companion animals

The PAWS Your Stress Zoom sessions provide attendees an opportunity to broadly learn about therapy dogs and companion animals. Animal handlers often share with attendees their personal experiences with therapy dogs, such as how they became a certified therapy dog-handler team. Students also ask handlers questions, which are often concerned with the animals present in the session.

9. Increased sense of connection with humans and animals

In-person, PAWS Your Stress attendees were able to connect with the animals, for example, through physical contact (petting) and eye contact. The in-person space allowed numerous people to attend the program at the same time, which may have encouraged increased human-to-human connections. Animal handlers take on a new role in the remote version of PAWS Your Stress, acting as mediators between the session attendees and the animals, and connecting with the attendees to a greater degree. For instance, they greet attendees, initiate Q & A with attendees, and talk about their animals throughout the session. Evidence from previous evaluation of the remote program suggests that attendees enjoy interacting with the humans (e.g., handlers and other attendees) in the session. In the remote space, attendees can connect with the animals by saying their name out loud, listening to the sounds the animals make, or watching them rest, do tricks, etc.

Companion animals and therapy dogs can facilitate social and emotional connection in group-based settings (Beetz et al., 2012; Lalonde et al., 2020). Additionally, group-based therapy dog programming has provided a space for students to socially connect with other humans on campus (Dell et al., 2015; Lalonde et al., 2020). Increased sense of connection in the remote space may encourage students to build other online/remote connections and relationships. Further, greeting students by name, asking students how they are doing, and other interactive occurrences may promote an increased sense of being attended to by others and being valued by others – indicators of mattering.

8. Increased sense of being attended to by others, and sense of being valued by others (Mattering precursors)

Increased sense of being attended to by others, and sense of being valued by others are two indicators of the construct *mattering* (Elliott et al., 2004; Rosenberg & McCullough, 1981). The former indicator, *attention/awareness*, is currently evidenced when handlers call students by their name, recognizing them each individually. An example of latter indicator, *importance*, is when handlers show support to attendees who share that they have lost their pets. These cognitive indicators of mattering precede an overall sense of mattering (a long-term outcome). Feeling like one matters to other people/groups is uniquely important in the context of the COVID-19 pandemic that may be physically, and psychologically, isolating and lonely for people (Flett et al., in press). Thus, through the connections with humans and animals that occur within the Zoom sessions, students may feel that they matter.

Increased sense of mattering is associated with improved mental health (general; Raque-Bogdan et al., 2011) and reduced anxiety, depression, loneliness, and college stress (Dixon et al., 2008; Dixon et al., 2009; Flett et al., 2016).

11. Decreased feelings of loneliness and depression

Depression is characterized by low mood and energy levels, as well as cognitive symptoms (e.g., difficulties concentrating), physical symptoms (e.g., weight gain or loss), and behavioral symptoms (e.g., under sleeping or over sleeping; American Psychological Association, n.d.b). Compared to research with the general population (Lim et al., 2018), university students are more likely to experience depressive symptoms (Eisenberg et al., 2007; Evans et al., 2018; Garlow et al., 2008; Ibrahim et al., 2013; Robinson et al., 2016). Students may also experience feelings of loneliness, which is associated with feelings of mental distress (McIntyre et al., 2018). Additionally, self-reported depressive symptoms and levels of loneliness have worsened for students compared to pre-pandemic measures (Hamza et al., 2020; Elmer et al., 2020).

In-person therapy dog programming can make students feel less lonely (Dell et al., 2015) and is associated with decreased depressive symptoms in adults (Nepps et al., 2014). Depression factors into students' academic performance and university retention rates (American College Health Association, 2019; Eisenberg et al., 2009; Owens et al., 2012), and lower scores on general mental health measures are associated with poorer university retention rates (Hjorth et al., 2016; Hilde Ramsdal et al., 2018). There is also evidence that increased loneliness is linked to worse academic performance (Mattanah et al., 2012) and academic persistence (Nicpon et al., 2006), and increased social support (including sense of belonging) is tied to improved academic persistence (Bowles & Brindle, 2017; Nicpon et al., 2006; Hilde Ramsdal et al., 2018).

Intermediate-term Outcomes

1. Increased online/remote human connection and relationship building

Due to pandemic lockdown mandates, connecting looks different in online and remote spaces. PAWS Your Stress attendees who experience an increased sense of connection may go on to connect with other people or groups online; thus, building online/remote relationships and potentially experiencing increased social solidarity and cohesion, as well as inclusion in the USask community (see long-term outcomes). Additionally, these online/remote connections and relationships may continue to foster senses of being attended to by others and valued by others, thereby increasing students' sense of mattering (Elliott et al., 2004; Rosenberg & McCullough, 1981).

2. Decreased emotional distress and psychological pain

Emotional distress in university students may include feeling hopeless, overwhelmed, depressed, anxious, and/or suicidal (Hamilton, 2006). Psychological pain is an "ache in the mind" (Shneidman, 1999, p. 291) distinct from physical pain, and can be described as "a mental suffering process which may be felt as pain, shame, grief, sadness, and similar negative feelings" (Demirkol et al., 2019, p. 206). Psychological pain can encompass cognitive, affective, and pain avoidance symptoms (Campos et al., 2020; Li et al., 2014).

As university students experience and report greater levels of anxiety and depression compared to the general population (American College Health Association, 2019; Eisenberg et al., 2007; Evans et al., 2018; Garlow et al., 2008; Ibrahim et al., 2013; Robinson et al., 2016), it is possible that some experience emotional distress and psychological pain. In fact, 42% of a sample from a Canadian university demonstrated clinical levels of psychological distress (Robinson et al., 2016). If therapy dog programming helps reduce students' feelings of stress, anxiety, depression, and loneliness (Dell et al., 2015; Grajfoner et al., 2017; Nepps et al., 2014), we anticipate a subsequent decrease in emotional distress and psychological pain.

Having a dog at home during the COVID-19 pandemic can reduce people's levels of distress, for example, because dogs a) provide a distraction from the pandemic, b) decrease sense of isolation/loneliness, and c) improve self-reported mental health (Bussolari et al., 2021). While this research focuses on personal companion animals, PAWS Your Stress provides a remote opportunity to potentially distract oneself from the pandemic, connect with others, and improve mental health. Reductions in emotional distress/psychological pain may improve students' sense of mattering, academic performance, and retention rates.

3. Decreased stress response

Stress response is a physiological construct, evidenced through measures such as cortisol levels in saliva, heart rate/pulse, and electrodermal (skin-related) activity (Barker et al., 2005; Fiocco & Hunse, 2017; Handlin et al., 2018). Some research suggests that in-person interactions with therapy dogs can minimize stress responses, as demonstrated through decreased heart rate, lower increases in electrodermal activity, and decreased cortisol levels (Barker et al., 2005; Fiocco & Hunse, 2017; Handlin et al., 2018; Nepps et al., 2014). The extent to which the same outcome would occur from a virtual visit with therapy dogs is unknown. Decreased stress, shown through physiological measures, can improve USask students' academic performance and retention rates (Akgun et al., 2003; Westrick et al., 2020).

4. Decreased blood pressure

Heightened blood pressure can indicate increased psychological stress (acute or chronic; Munakata, 2018). In-person visits with therapy dogs can decrease blood pressure, during and after the interaction (Handlin et al., 2018; Tsai et al., 2010). The extent to which the same outcome would occur from a virtual visit with therapy dogs is unknown. Decreased blood pressure, indicating reductions in stress and anxiety, may contribute to improvements in USask students' academic performance and retention rates (Akgun et al., 2003; Owens et al., 2012; Hilde Ramsdal et al., 2018; Westrick et al., 2020).

5. Increased engagement in stress management activities (e.g., time spent with own companion animals, attendance at therapy dog events or other similar events, etc.)

Therapy dog programming can act as a reminder for university students to take breaks amidst everyday academic stressors they may face (Dell et al., 2015; Lalonde et al., 2020). Further, increased awareness of therapy dogs and PAWS Your Stress may encourage students to continue accessing the program to minimize their stress. Increased engagement in stress management activities resulting from awareness of stress management programming can be explained by motivation-focused theoretical frameworks, such as the information-motivation-behavior model (Fisher & Fisher, 1992; Fisher et al., 1994). When USask students learn about a) wellbeing opportunities offered by USask to promote stress reduction, and b) therapy dogs/companion animals, they may become motivated to engage in such programs. University students who have attended in-person therapy dog programs have reported their willingness to attend future therapy dog events (Bell, 2013; Dell et al., 2015). Higher scores on measures of resourcefulness are associated with enhanced academic performance (Akgun et al., 2003; Ayala et al., 2018).

Long-term Outcomes

1. Increased social solidarity, social cohesion, and sense of community at USask

Rusu (2012) cites sociologists Durkheim and Tönnies when introducing social solidarity as “the fabric that ties people together” (p. 71). Social solidarity at USask might look like students bonding and forming relationships with others on campus. Relatedly, social cohesion can be defined in terms of belonging, inclusion, participation, recognition, and legitimacy (Jenson, 1988). With increased online/remote connections and relationship building, alongside indicators of mattering (e.g., recognition), students may experience an increased sense of social cohesion.

According to McMillan and Chavis (1986), *community* involves four main elements: 1) membership or feeling of belonging or sharing a sense of personal relatedness; 2) influence or a sense of mattering and making a difference to a group or individual members of a group; 3) integration and fulfillment of needs; and, 4) shared emotional connection where one believes group members have shared and will share history, common places, time together, and similar

experiences. USask students may gain a sense of online/remote community when building relationships with others based on the PAWS Your Stress program, for example, through increased feelings of mattering and identifying with groups of people/friends on campus (McMillan & Chavis, 1986; Miller et al., 2017).

More group identifications (e.g., school, family, friends) are linked with better mental health for students (Miller et al., 2017). Therapy dog program research suggests that students feel a sense of community and a sense of school belonging after visiting with the dogs in-person (Binfet, 2017; Dell et al., 2015). From increased online/remote human connection and relationship building, students may identify themselves with different groups (e.g., people who love pets, those interested in therapy dogs, new friends, etc.), demonstrating increased social solidarity, social cohesion, and sense of community at USask.

2. Increased sense of mattering

Mattering is indicated by multiple factors, some of which are relevant within the PAWS Your Stress program (Elliott et al., 2004; Rosenberg & McCullough, 1981). Feeling that one is attended to by others and a sense of being valued by others (short-term outcomes) can contribute to students feeling like they matter to other people, such as animal handlers, peer health mentors, the PAWS Your Stress team, or the USask community (Rosenberg & McCullough, 1981).

3. Students feel prioritized and important in the eyes of the university

Because the PAWS Your Stress program transitioned to online and remote formats due to the COVID-19 pandemic, students may feel that the therapy dog team, and USask as a whole, prioritized their need for mental health programming during a complicated, uncertain time. Attendees who experience an increased sense of mattering may also feel prioritized by USask, as the therapy dog team and USask continued to offer a space for positive connections in a time that may be physically and psychologically isolating. Thus, students may feel important in the eyes of the university.

4. Improved academic performance

Academic performance can be measured in various ways, such as overall GPA, specific class/semester GPA, and individual test scores. Several factors contribute to university students' academic performance. Heightened levels of depression, loneliness, anxiety, and academic stress are all linked with poorer academic performance (Akgun et al., 2003; Eisenberg et al., 2009; Owens et al., 2012; Mattanah et al., 2012). On the other hand, students with higher levels of resourcefulness demonstrate enhanced academic performance (Akgun et al., 2003; Ayala et al., 2018). Improved academic performance is a key predictor of university retention rates (Stewart et al., 2015; Westrick et al., 2015; Westrick et al., 2020); thus, we expect those with improved academic performance to show improved levels of retention in their USask program.

5. Increased USask student retention

University students are more likely to remain registered in their program if they demonstrate better academic performance; higher levels of social support, self-efficacy, a sense of belonging, and resourcefulness; and less overall mental health challenges, depression, and loneliness (Ayala et al., 2018; Bowles & Brindle, 2017; Eisenberg et al., 2009; Hjorth et al., 2016; Nicpon et al., 2006; Hilde Ramsdal et al., 2018; Stewart et al., 2015; Westrick et al., 2015; Westrick et al., 2020). If PAWS Your Stress attendees demonstrate expected short-term and intermediate-term program outcomes related to mental health and/or show improved academic performance, we expect to see improved retention rates.

Ultimate Outcome

1. Improved quality of life and overall wellness.

Quality of life and wellness are complex, multidomain constructs. Quality of life can be affected by various factors at different socio-structural levels (Sirgy, 2012). Socioeconomic, political, environmental, and cultural factors can impact quality of life, as well as personal wealth, health, and demographic variables. The extent to which one's needs are met also factor into perceived quality of life (e.g., needs for love, belonging, and social contact). PAWS Your Stress provides an opportunity for students to improve perceived quality of life, especially within the health domain. Increased feelings of love/comfort, support, happiness, and mattering could contribute to students' quality of life, just as decreased mental health challenges and social isolation/loneliness due to the COVID-19 pandemic could.

Perceived quality of life at any level can factor into a person's well-being (Sirgy, 2012). Well-being can be thought of in relation to several domains, many of which are applicable to PAWS Your Stress: Social, health, leisure, work/education, etc. For instance, by attending PAWS Your Stress, students may experience improved social well-being through creating and/or sustaining new and/or existing connections with humans or animals. Students also may experience improved health, through reductions in stress, anxiety, depression and loneliness, and increased feelings of comfort/love, and support. Educational well-being may look like improved academic performance and student retention rates, as a result of increased engagement in stress management activities, and a decrease in stress responses and emotional distress.

The COVID-19 pandemic has influenced students' quality of life and wellness (Elmer, 2020; Flett et al., in press; Greyling et al., 2020; Hamza, 2020; Yang & Ma, 2020). Improved quality of life and wellness may result from any combination of the short-term, intermediate-term, and long-term outcomes.

2. Increased acceptance & application of One Health at USask

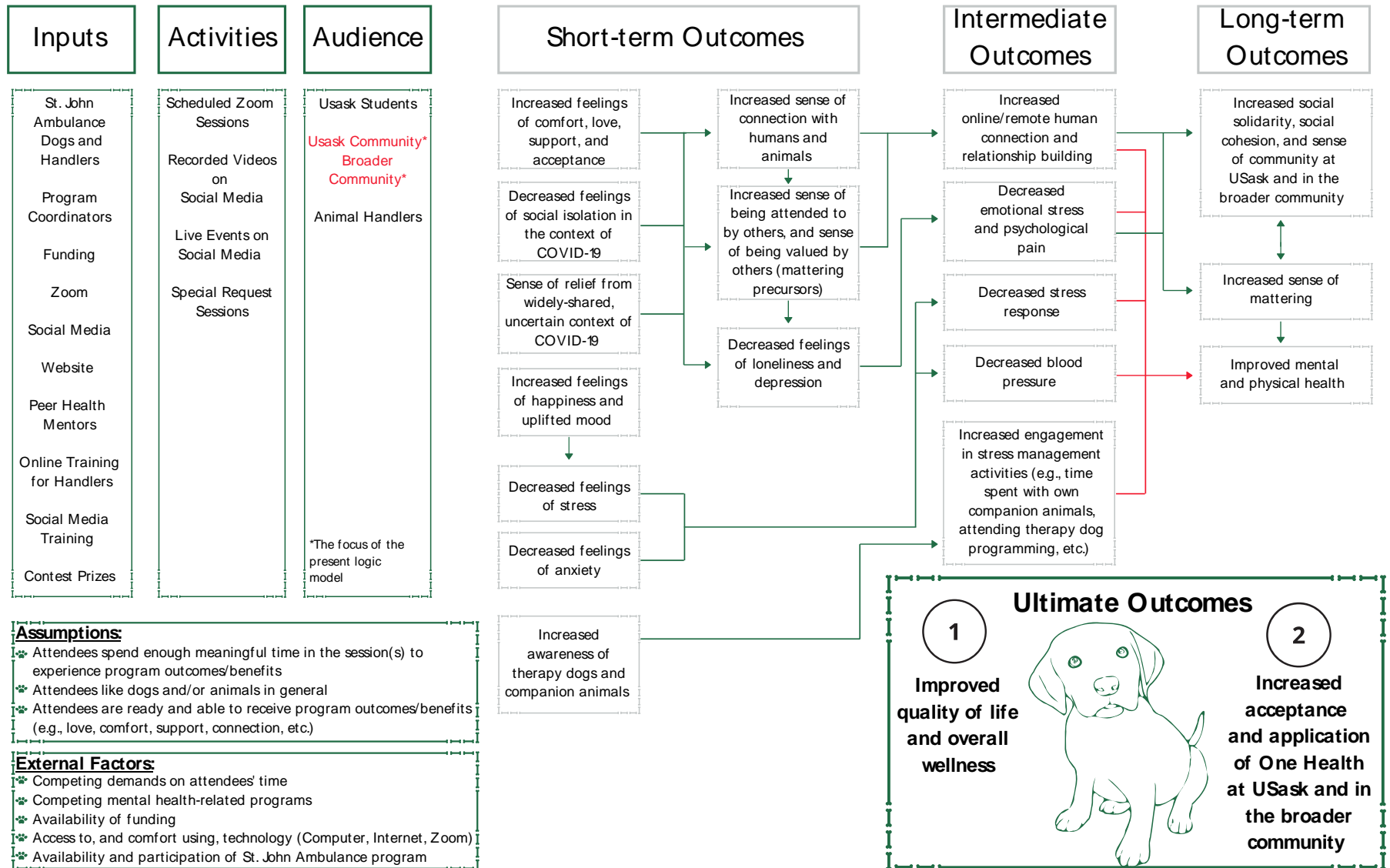
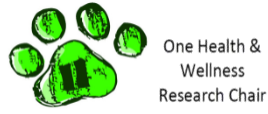
One Health is an interdisciplinary approach to achieving the health of all species (Centres for Disease Control and Prevention, 2018; Hodgson & Darling, 2011). The approach recognizes the interconnected nature of health between humans, animals, and plants. *Zooeyia* is a concept introduced by Hodgson and Darling (2011) that is particularly relevant to One Health and animal-assisted interventions. Specifically, zooeyia refers to human-animal bonds, and how animals contribute to the individual and collective health of people (Hodgson & Darling, 2011). If USask students demonstrate improved health from attending PAWS Your Stress (e.g., show evidence of health-related short-term and intermediate-term outcomes), the USask community may be more likely to accept and apply One Health in future research and initiatives.

Appendix B

Program Logic Model: USask Staff, Faculty, and the Broader Community

PAWS Your Stress Program Logic Model

Remote/Online Version: USask staff, faculty, and the broader community



PLM Narrative Notes:

- Passages that differ from the USask student PLM are shown in red font
- Much of the research on therapy dog programming is targeted towards specific populations, such as students and those with varying mental and physical illnesses. Thus, while the literature below is mostly based on student outcomes of therapy dog programming, we exploratorily hypothesize that the same outcomes will result for USask staff, faculty, and the broader community.

Short-term Outcomes**1. Increased feelings of comfort/love, support, and acceptance**

As defined by Dell et al. (2015), comfort/love in the context of therapy dog programming means experiencing “reciprocal love” (p. 332) and “positive feelings” (p. 333) from interactions with therapy dogs. On the other hand, support is described as “decompressing and relaxing” (p. 333) as a result of therapy dog visits. Finally, acceptance can be understood as “engaging and accepting interactions” (Hart, 2010, p. 76) with the therapy dogs.

In-person therapy dog sessions provide students with feelings of comfort/love, support, and acceptance (Dell et al., 2015; Lalonde et al., 2020; Ward-Griffin, 2018). Feeling comforted/loved, supported, and/or accepted by the therapy dogs and/or handlers creates spaces where students feel connected with other beings, attended to by others, and important to others (Dell et al., 2015; Lalonde et al., 2020; Rosenberg & McCullough, 1981).

While this research focusses on the role the therapy dogs play in promoting these feelings, we currently need to consider the novel role animal handlers play in the remote space. These feelings may also result from interacting with, or listening to, other humans in the session.

2. Decreased feelings of social isolation in the context of COVID-19

Physical distancing mandates put in place to limit the spread of COVID-19 may also inhibit social interactions. The PAWS Your Stress Zoom sessions provide an opportunity for people to interact with other humans (handlers, peer mentors, and other attendees), specifically within a context that otherwise limits such interactions. Preliminary observations suggest that remote connections during the COVID-19 pandemic improve levels of wellbeing and reduce feelings of loneliness (Kotera, 2020). Further, companion animals can minimize feelings of isolation and loneliness during the pandemic (Bussolari, 2021). We suspect that USask staff, faculty, and the broader community will experience decreased feelings of social isolation when they connect with other humans and animals during the session, by watching the dogs and using the microphone or chat box features on Zoom.

3. Sense of relief from widely shared, uncertain context of COVID-19

The COVID-19 pandemic has brought forth many uncertainties (e.g., in relation to length of the pandemic, viral spread, the economy, personal finances, timing of vaccinations, etc.). Evidence from previous evaluation of the remote PAWS Your Stress program suggested that the Zoom sessions provide an opportunity to take a break, especially because social interactions are currently limited. We exploratorily hypothesize that the opportunity to take a break from other daily activities by attending PAWS Your Stress remotely will provide attendees with a sense of relief from the uncertain COVID-19 context.

4. Increased feelings of happiness and uplifted mood

Happiness is a broad, interdisciplinary, and contextual construct that is not easily defined (Zevnik, 2014). Presently, happiness and uplifted mood can be thought of as increased positive affect from remotely connecting with other humans and animals. The COVID-19 pandemic may factor into individuals' happiness levels (Greyling, 2020; Yang & Ma, 2020), especially considering increased physical and social isolation due to lockdown restrictions, and a variety of uncertainties about the virus, lockdown mandates, and vaccinations.

In-person therapy dog programs provide students with increased happiness and uplifted mood (Crossman et al., 2015; Dell et al., 2015; Grajfoner et al., 2017; Marcus et al., 2012; Ward-Griffin, 2018). **Increased levels of happiness may reduce stress levels in USask staff, faculty, and broader community members that attend PAWS Your Stress (Kye & Park, 2014; Quezada et al., 2016).**

5. Decreased feelings of stress

Self-reported feelings of stress during the COVID-19 pandemic are highly prevalent (Mazza et al., 2020; Nwachukwu et al., 2020; Samadarshi et al., 2020; Shah et al., 2021; Wang et al., 2020). Stress may be experienced to a higher degree for those who: a) are female, b) are unemployed, c) are in younger adult age groups, d) are not married, e) have an acquaintance who was infected with COVID-19, f) have a history of medical issues, g) work outside the home, and h) have more negative coping mechanisms (Mazza et al., 2020; Nwachukwu et al., 2021; Samadarshi et al., 2020; Shah et al., 2021; Wang et al., 2020). Companion dogs have reportedly contributed to reduced feelings of stress during the pandemic (Bussolari, 2021).

Self-reports from university students relay that in-person therapy dog programming reduces their stress levels (Barker et al., 2016; Binfet, 2017; Binfet et al., 2018; Dell et al., 2015; Lalonde et al., 2020). Decreased stress from in-person visits may result in decreased stress response and blood pressure (Barker et al., 2005; Fiocco & Hunse, 2017; Handlin et al., 2018; Nepps et al., 2014).

6. Decreased feelings of anxiety

Anxiety can involve cognitive, physiological, and behavioral/physical symptoms, such as feeling tense, worrying, increased blood pressure, and rapid heart rate (American Psychological Association, n.d.a). **The prevalence of self-reported anxiety for adults in Canada has increased since the onset of the pandemic (Dozois, 2021).**

Accessing in-person therapy dog programming has benefitted university students by reducing levels of anxiety (Crossman et al., 2015; Grajfoner, 2017), and having companion animals has reduced feelings of anxiety during the pandemic (Bussalori et al., 2021). Decreased feelings of anxiety may lead to a reduction in measures of stress response and blood pressure (Barker et al., 2005; Fiocco & Hunse, 2017; Handlin et al., 2018; Nepps et al., 2014; Tsai et al., 2010).

7. Increased awareness of therapy dogs and companion animals

The PAWS Your Stress Zoom sessions provide attendees an opportunity to broadly learn about therapy dogs and companion animals. Animal handlers often share their personal experiences with therapy dogs, such as how they became a certified therapy dog-handler team. USask staff, faculty, and broader community members may also ask handlers questions, which are often concerned with the animals present in the session.

8. Increased sense of connection with humans and animals

In-person, PAWS Your Stress attendees were able to connect with the animals, for example, through physical contact (petting) and eye contact. The in-person space allowed numerous people to attend the program at the same time, which may have encouraged increased human-to-human connections. Animal handlers take on a new role in the remote version of PAWS Your Stress, acting as mediators between the session attendees and the animals, and connecting with the attendees to a greater degree. For instance, they greet attendees, initiate Q & A with attendees, and talk about their animals throughout the session. Evidence from previous evaluation of the remote program suggests that attendees enjoy interacting with the humans (e.g., handlers and other attendees) in the session. In the remote space, attendees can connect with the animals by saying their name out loud, listening to the sounds the animals make, or watching them rest, do tricks, etc.

Companion animals and therapy dogs can facilitate social and emotional connection in group-based settings (Beetz et al., 2012; Lalonde et al., 2020). Additionally, group-based therapy dog programming has provided a space for students to socially connect with other humans on campus (Dell et al., 2015; Lalonde et al., 2020). Increased sense of connection in the remote space may encourage USask staff, faculty, and broader community members to build other online/remote connections and relationships. Further, greeting people by name, asking people how they are doing, and other interactive occurrences may promote an increased sense of being attended to by others and being valued by others – indicators of mattering.

9. Increased sense of being attended to by others, and sense of being valued by others (Mattering precursors)

Increased sense of being attended to by others, and sense of being valued by others are two indicators of the construct *mattering* (Elliott et al., 2004; Rosenberg & McCullough, 1981). The former indicator, *attention/awareness*, is currently evidenced when handlers call attendees by their name, recognizing them each individually. An example of latter indicator, *importance*, is when handlers show support to attendees who share that they have lost their pets. These cognitive indicators of mattering precede an overall sense of mattering (a long-term outcome). Feeling like one matters to other people/groups is uniquely important in the context of the COVID-19 pandemic that may be physically, and psychologically, isolating and lonely for people (Flett et al., in press). Thus, through the connections with humans and animals that occur within the Zoom sessions, attendees may feel that they matter.

Increased sense of mattering is associated with improved mental health (general; Raque-Bogdan et al., 2011) and reduced anxiety, depression, and loneliness (Dixon et al., 2008; Dixon et al., 2009; Flett et al., 2016).

10. Decreased feelings of loneliness and depression

Depression is characterized by low mood and energy levels, as well as cognitive symptoms (e.g., difficulties concentrating), physical symptoms (e.g., weight gain or loss), and behavioral symptoms (e.g., under sleeping or over sleeping; American Psychological Association, n.d.b).

The prevalence of self-reported depression for adults in Canada has increased since the onset of the pandemic (Dozois, 2021).

In-person therapy dog programming can make students feel less lonely (Dell et al., 2015) and is associated with decreased depressive symptoms in adults (Nepps et al., 2014). As well, living with a dog during the pandemic can help minimize individuals' sense of isolation and loneliness (Bussalori et al., 2021). Decreased feelings of loneliness and depression may result in

decreased emotional stress and psychological pain (Campos et al., 2020; Demirkol et al., 2019; Hamilton, 2006; Li et al., 2014).

Intermediate-term Outcomes

1. Increased online/remote human connection and relationship building

Due to pandemic lockdown mandates, connecting looks different in online and remote spaces. PAWS Your Stress attendees who experience an increased sense of connection may go on to connect with other people or groups online; thus, building online/remote relationships and potentially experiencing increased social solidarity and cohesion, as well as inclusion in USask and broader communities (see long-term outcomes). Additionally, these online/remote connections and relationships may continue to foster senses of being attended to by others and valued by others, thereby increasing individuals' sense of mattering (Elliott et al., 2004; Rosenberg & McCullough, 1981).

2. Decreased emotional distress and psychological pain

The extent to which USask staff, faculty, and broader community members experience emotional distress and/or psychological pain inevitably varies. Emotional distress can include feeling hopeless, overwhelmed, depressed, anxious, and/or suicidal (Hamilton, 2006). Psychological pain is an “an ache in the mind” (Shneidman, 1999, p. 291) distinct from physical pain, and can be described as “a mental suffering process which may be felt as pain, shame, grief, sadness, and similar negative feelings” (Demirkol et al., 2019, p. 206). Psychological pain can encompass cognitive, affective, and pain avoidance symptoms (Campos et al., 2020; Li et al., 2014).

If therapy dog programming helps reduce attendees' feelings of stress, anxiety, depression, and loneliness (Dell et al., 2015; Grajfoner et al., 2017, Nepps et al., 2014), we anticipate a subsequent decrease in emotional distress and psychological pain.

Having a dog at home during the COVID-19 pandemic can reduce people's levels of distress, for example, because dogs a) provide a distraction from the pandemic, b) decrease sense of isolation/loneliness, and c) improve self-reported mental health (Bussolari et al., 2021). While this research focuses on personal companion animals, PAWS Your Stress provides a remote opportunity to potentially distract oneself from the pandemic, connect with others, and improve mental health. Reductions in emotional distress/psychological pain may improve attendees' sense of mattering, and mental health.

3. Decreased stress response

Stress response is a physiological construct, evidenced through measures such as cortisol levels in saliva, heart rate/pulse, and electrodermal (skin-related) activity (Barker et al., 2005; Fiocco & Hunse, 2017; Handlin et al., 2018). Some research suggests that in-person interactions with therapy dogs can minimize stress responses, as demonstrated through decreased heart rate, lower increases in electrodermal activity, and decreased cortisol levels (Barker et al., 2005; Fiocco & Hunse, 2017; Handlin et al., 2018; Nepps et al., 2014). The extent to which the same outcome would occur from a virtual visit with therapy dogs is unknown. Decreased stress, shown through physiological measures, can positively factor into attendees' overall physical and mental health.

4. Decreased blood pressure

Heightened blood pressure can indicate increased psychological stress (acute or chronic; Munakata, 2018). In-person visits with therapy dogs can decrease blood pressure, during and after the interaction (Handlin et al., 2018; Tsai et al., 2010). The extent to which the same outcome would occur from a virtual visit with therapy dogs is unknown. Alongside other outcomes, decreased blood pressure may be one factor contributing to improved mental and physical health.

5. Increased engagement in stress management activities (e.g., time spent with own companion animals, attendance at therapy dog events or other similar events, etc.)

Increased awareness of therapy dogs and PAWS Your Stress may encourage USask staff, faculty, and broader community members to continue accessing the program to minimize their stress (Bell, 2013). Increased engagement in stress management activities resulting from awareness of stress management programming can be explained by motivation-focussed theoretical frameworks, such as the information-motivation-behavior model (Fisher & Fisher, 1992; Fisher et al., 1994). When individuals learn about a) wellbeing opportunities offered by USask to promote stress reduction, and b) therapy dogs/companion animals, they may become motivated to engage in such programs. Previous evaluation of the remote program revealed that attendees would be willing to join future Zoom sessions. Engaging in stress management activities may further contribute to improved physical and mental health.

Long-term Outcomes

1. Increased social solidarity, social cohesion, and sense of community at USask and in the broader community

Rusu (2012) cites sociologists Durkheim and Tönnies when introducing social solidarity as “the fabric that ties people together” (p. 71). Social solidarity at USask might look like students bonding and forming relationships with others on campus. Relatedly, social cohesion can be defined in terms of belonging, inclusion, participation, recognition, and legitimacy (Jenson, 1988). With increased online/remote connections and relationship building, alongside indicators of mattering (e.g., recognition), attendees may experience an increased sense of social cohesion.

According to McMillan and Chavis (1986), *community* involves four main elements: 1) membership or feeling of belonging or sharing a sense of personal relatedness; 2) influence or a sense of mattering and making a difference to a group or individual members of a group; 3) integration and fulfillment of needs; and, 4) shared emotional connection where one believes group members have shared and will share history, common places, time together, and similar experiences. USask staff, faculty, and broader community members may gain a sense of online/remote community when building relationships with others based on the PAWS Your Stress program, for example, through increased feelings of mattering and identifying with groups of people (McMillan & Chavis, 1986; Miller et al., 2017).

Therapy dog program research suggests that students feel a sense of community and a sense of school belonging after visiting with the dogs in-person (Binfet, 2017; Dell et al., 2015). From increased online/remote human connection and relationship building, attendees may identify themselves with different groups (e.g., people who love pets, those interested in therapy dogs,

new friends, etc.), demonstrating increased social solidarity, social cohesion, and sense of community at USask and in the broader community.

2. Increased sense of mattering

Mattering is indicated by multiple factors, some of which are relevant within the PAWS Your Stress program (Elliott et al., 2004; Rosenberg & McCullough, 1981). Feeling that one is attended to by others and a sense of being valued by others (short-term outcomes) can contribute to attendees feeling like they matter to other people, such as animal handlers, peer health mentors, the PAWS Your Stress team, or the USask community (Rosenberg & McCullough, 1981).

3. Improved mental and physical health

If USask staff, faculty, and broader community members experience health-related short-term and intermediate-term outcomes, their overall physical and mental health may improve. In turn, this will factor into individuals' quality of life and overall wellness.

Ultimate Outcomes

1. Improved quality of life and overall wellness.

Quality of life and wellness are complex, multidomain constructs. Quality of life can be affected by various factors at different socio-structural levels (Sirgy, 2012). Socioeconomic, political, environmental, and cultural factors can impact quality of life, as well as personal wealth, health, and demographic variables. The extent to which one's needs are met also factor into perceived quality of life (e.g., needs for love, belonging, and social contact). PAWS Your Stress provides an opportunity for people to improve perceived quality of life, especially within the health domain. Increased feelings of love/comfort, support, happiness, and mattering could contribute to individuals' quality of life. Quality of life may also be improved through decreased mental health challenges and social isolation/loneliness due to the COVID-19 pandemic.

Perceived quality of life at any level can factor into a person's well-being (Sirgy, 2012). Well-being can be thought of in relation to several domains, many of which are applicable to PAWS Your Stress: Social, health, leisure, work/education, etc. For instance, by attending PAWS Your Stress, individuals may experience improved social well-being through creating and/or sustaining new and/or existing connections with humans or animals. Attendees may also experience improved health, through reductions in stress, anxiety, depression and loneliness, and increased feelings of comfort/love, and support. Work-related well-being may look like improved performance and decreased levels of work-related stress as a result of increased engagement in stress management activities, and a decrease in stress responses and emotional distress.

The COVID-19 pandemic has influenced individuals' quality of life and wellness (e.g., Best et al., 2021; Shek, 2021). Improved quality of life and wellness may result from any combination of the short-term, intermediate-term, and long-term outcomes.

2. Increased acceptance and application of One Health at USask and in the broader community

One Health is an interdisciplinary approach to achieving the health of all species (Centres for Disease Control and Prevention, 2018; Hodgson & Darling, 2011). The approach recognizes the

interconnected nature of health between humans, animals, and plants. *Zooeyia* is a concept introduced by Hodgson and Darling (2011) that is particularly relevant to One Health and animal-assisted interventions. Specifically, zooeyia refers to human-animal bonds, and how animals contribute to the individual and collective health of people (Hodgson & Darling, 2011). If USask staff, faculty, and broader community members demonstrate improved health from attending PAWS Your Stress (e.g., show evidence of health-related short-term and intermediate-term outcomes), USask and broader communities may be more likely to accept and apply One Health in future research and initiatives.

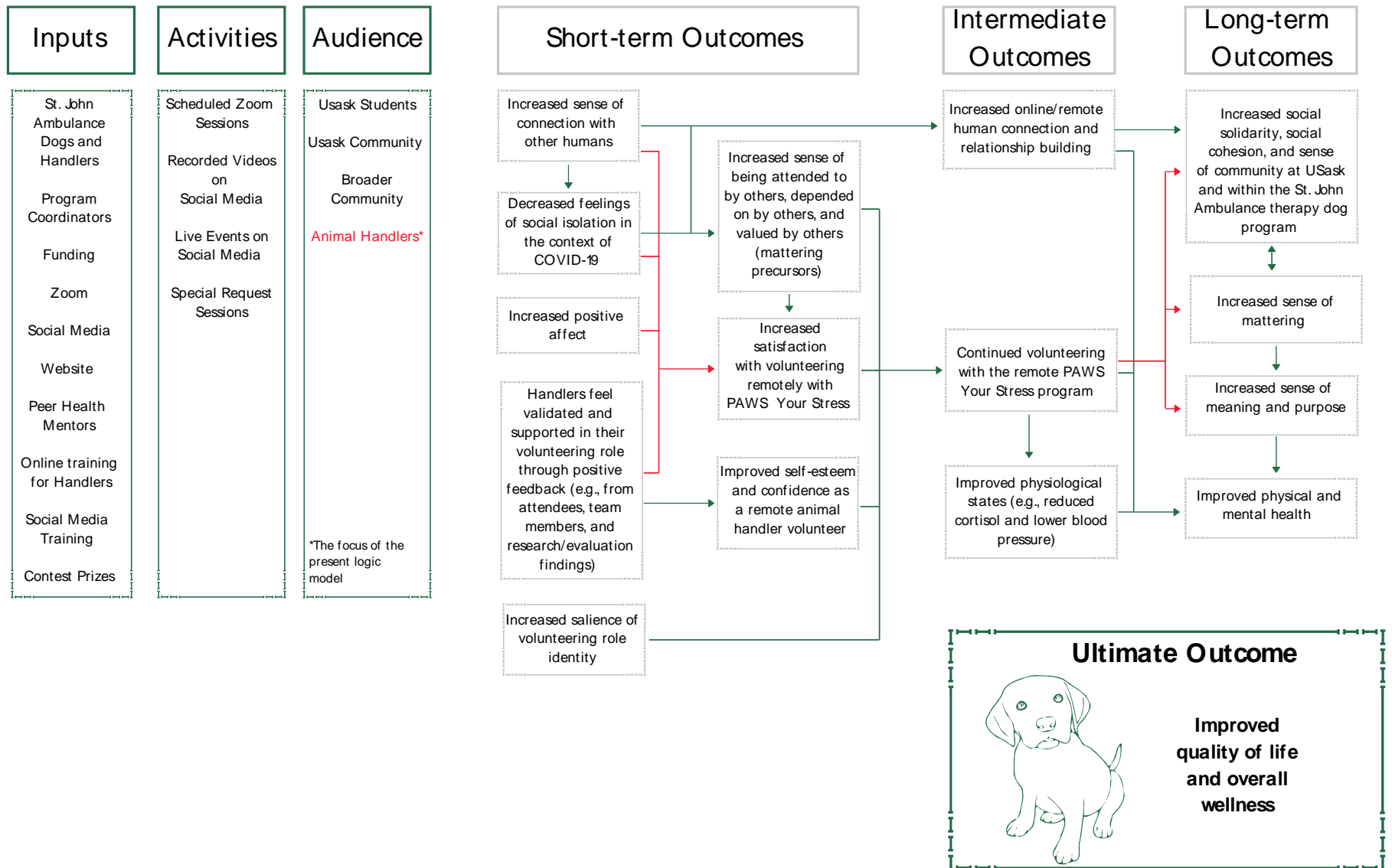
Appendix C

Program Logic Model: Volunteering Animal Handlers



PAWS Your Stress Program Logic Model

Remote/Online Version: **Animal Handlers**



Appendix D

Interview Guide for Program Logic Model Team Meeting

1. The first topic I would like to discuss is the overarching program goal. This will help guide the rest of this meeting. *In your opinion, what is the most general, broad impact that you expect the live, online Zoom sessions will have on the students, staff, faculty, and broader community?*

2. I would now like to talk through the pathways that lead us to this overarching goal. How do we move from the program activity (these remote scheduled therapy dog sessions) to the overarching program goal?
 - a) First, as you may understand from Linzi's evaluation work, short-term outcomes refer to outcomes that are more cognitive. E.g., learning/knowledge/awareness ("feelings" can also be included in this)

What cognitive changes do you expect to occur due to the scheduled Zoom sessions? Why?

 - b) Intermediate-term outcomes are more behavioral in nature, compared to short-term outcomes. E.g., physiological (as shown in Linzi's PLM), action-oriented, habitual

What behaviors do you expect to result from the cognitive changes? Why?

 - c) Long-term outcomes are outcomes that you expect people to experience after some length of time (e.g., 3 months later). These outcomes also tend to be behavioral, and are expected to result from the intermediate-term outcomes.

What long-term outcomes do you expect to result from the intermediate-term, behavioral changes? Why?

3. If this has not already come up throughout Q2 discussion: *How might these outcome pathways differ for the different participant groups that attend the sessions (i.e., USask students, staff, faculty; and the broader community)? If so, why? Are they the same? If so, why?*

4. *Can you think of any factors that are external to the program that might help or hinder peoples' ability to experience these outcomes?*

5. *Is there anything that did not come up in our discussion today that you would like to bring up?*

Appendix E

Consent Form – Interviews with Session Attendees

Student evaluator:

Shaneice Fletcher-Hildebrand, MA student, Department of Psychology, University of Saskatchewan

Email: shaneice.fletcher@usask.ca

Evaluation supervisors:

Dr. Colleen Dell, Professor, Department of Sociology & School of Public Health, University of Saskatchewan

Email: colleen.dell@usask.ca

Dr. Linzi Williamson, Postdoctoral Fellow, Department of Sociology, University of Saskatchewan

Email: linzi.williamson@usask.ca

Purpose: The purpose of this evaluation is to assess the effects the PAWS Your Stress therapy dog program has on the individuals who attend the scheduled, live Zoom sessions.

Procedures: This evaluation is being conducted by a student evaluator who is external to the PAWS Your Stress program, in order to fulfill a Master's level practicum requirement. If you are interested in participating, you will be asked to complete an interview via Zoom or phone call with the student evaluator, which will take approximately 45 – 60 minutes to complete. With consent, the interview will be recorded by the student evaluator on an external recording device. You are not required to have your camera on. You will be asked to consider multiple ways in which the remote program has affected you, and to share a story illustrating what you have personally experienced during and/or after the sessions as a result of the program (e.g., a story about an interaction or activity that occurred within the Zoom session that influenced your mental health or wellbeing). Interviews will be transcribed by the student evaluator. Please feel free to ask any questions regarding the procedures and goals of the study or your role.

Potential Risks: It is unlikely, but possible, that some interview questions will bring forth uncomfortable thoughts. Feel free to not answer any questions that make you uncomfortable. We also encourage you to ask the interviewer for help to locate appropriate resources. As well, you may wish to contact the following services for assistance:

- *For University of Saskatchewan students:*
 - University of Saskatchewan Student Wellness Centre (Email: student.wellness@usask.ca; Phone: 1-306-966-5768); Website: <https://students.usask.ca/health/centres/wellness-centre.php>)
- *For University of Saskatchewan employees:*
 - University of Saskatchewan Wellness Resources for employees (Email: wellnessresources@usask.ca; Phone: 1-306-966-4580)
- *Other resources:*
 - Canada HealthLine (Phone: 8-1-1)

- Saskatchewan 211 (Phone: 2-1-1; Website: <https://sk.211.ca>)
- Saskatoon Crisis Intervention Service (Phone: 1-306-933-6200; Website: <https://saskatooncrisis.ca>)

Potential Benefits: The feedback you provide may be used to make improvements to the University of Saskatchewan’s remote PAWS Your Stress therapy dog program and to better understand the effects the Zoom sessions have on those who attend.

Confidentiality: Any information shared with the student evaluator will be kept confidential. This means that your name will not be attached to any data that may be published and/or presented in manuscripts, reports, infographics, and conferences. Although direct quotations may be reported from the interview, you will be given a pseudonym, and all identifying information will be removed from the published or presented materials.

Data Storage: Audio recordings will be kept in a password protected computer, and will be deleted immediately following completion of data transcription. Transcripts will be stored in a password protected computer, and will require a separate password to be viewed. Only the evaluation team will have access to the transcripts. The consent form document with your name on it will be password-protected and stored in an online folder, separate from the audio recordings and transcripts. All data will be destroyed beyond recovery 5 years following any resulting publications.

Right to Withdraw: Your participation is voluntary and you can answer only those questions that you are comfortable with. You may withdraw from the research project for any reason until March 31, 2021 (when data analysis is completed) without explanation or penalty of any sort. If you wish to withdraw, please contact the student evaluator or the evaluation supervisors, who will ensure any information you provide us with in the interview will be destroyed beyond recovery. The only exception to data withdrawal is once the data has been analyzed.

Zoom: If Zoom is the preferred interview method, the interview will be conducted using the most recent version of a Zoom Pro account. A password will be required to enter the Zoom room. The meeting link and password will only be shared with you via email. To further protect your privacy, the meeting will be locked after you have entered, which means no new participants can join. Although every effort will be made to ensure privacy, no guarantee of data privacy can be made with any currently used platforms.

Recording: The interview will not be recorded using Zoom’s recording feature. Cloud recording and automatic recording options will be disabled prior to the meeting. As a participant, you may not make any unauthorized recordings of the interview.

Privacy: The Zoom server (i.e., data centre) associated with the current interviews is located in Canada. None of the data will be stored on any servers outside Canada.

- To view Zoom’s privacy statement, click the following link: <https://zoom.us/privacy>
- To view Zoom’s terms of service, click the following link: <https://zoom.us/terms>
- If you have questions about Zoom’s terms, policies, and compliance, send an email to: legal@zoom.us

Follow up: Please let the student evaluator know if you would like to obtain results from the evaluation. A summary of the results can be provided via email following completion of the evaluation. The approximate completion date for the evaluation is April 30th, 2021.

Questions or Concerns: Do not hesitate to contact the student evaluator or evaluation supervisors using the information at the top of page 1.

Oral consent:

- Do you agree to take part in this interview?
- Do you agree to be audio-recorded?
- Do you agree that you will not make any unauthorized recordings of the interview?

I read and explained this consent form to the participant before receiving the participant's consent, and the participant had knowledge of its contents and appeared to understand it.

Name of Participant

Researchers signature

Date

Appendix F Interview Guide – Remote PAWS Your Stress attendees

Topic 1 – Increased love, comfort, support, happiness

1. What do you feel when you attend the remote therapy dog sessions?

Prompt

- *What is it about the sessions that make you feel _____?*
- *If not brought up naturally,*
 - *How do the therapy dogs/other animals make you feel?*
 - *How do the animal handlers make you feel?*

2. Do the remote therapy dog sessions make you feel loved/comforted or supported?

Prompt

- *If so, in what ways? Why?*

3. Do the remote therapy dog sessions make you feel happy or uplift your mood?

Prompt

- *If so, in what ways? Why?*

Topic 2 – Reduced depression, anxiety, stress

4. If you have ever felt depressed, do you think that attending a remote therapy dog session would help you feel less depressed?

Prompt

- *If so, in what ways? Why?*

5. If you have ever felt anxious, do you think that attending a remote therapy dog session would help you feel less anxious?

Prompt

- *If so, in what ways? Why?*

Topic 3 – COVID-related

6. Have you felt isolated/lonely at any point during the COVID-19 pandemic?

Prompts

- *If yes: Do the therapy dog Zoom sessions make you feel less isolated/lonely?*
 - *If so, in what ways? Why?*
 - *Hypothetically, if COVID-19 did not exist, do you think you would still experience reduced feelings of isolation/loneliness after attending a therapy dog session on Zoom?*
- *If no: Do you think that others who have felt isolated/lonely during this time might feel less isolated/lonely after attending the therapy dog Zoom sessions?*

7. In the context of the COVID-19 pandemic, do you feel an increased sense of connection after attending the remote therapy dog sessions?

Prompts:

- *If yes: How do you describe the connection you feel?*
 - *Does the sense of connection result from connecting with the animals? Dogs? Special guests? All?*

- *Does the sense of connection result from connecting with the humans? Handlers? Peer health mentors? Coordinators?*
- *In what ways? Why?*
- *Hypothetically, if COVID-19 did not exist, do you think you would still experience an increased sense of connection after attending a therapy dog session on Zoom?*
- *If no: Do you think that others might feel an increased sense of connection after attending the therapy dog Zoom sessions?*

8. The COVID-19 pandemic has brought forth many uncertainties (e.g., when it will end, when will restrictions lift, etc). Do you experience a sense of relief from the uncertain COVID-19 context as a result of the therapy dog Zoom sessions?

- *If so, what do you feel relieved from?*
- *If so, how do you describe the relief that you feel?*
- *If so, in what ways? Why?*

Topic 4 – Awareness of therapy dogs

9. Have the remote therapy dog sessions increased your awareness or knowledge of therapy dogs and/or companion animals?

Prompt

- *How much did you know about therapy dogs before you attended the therapy dog Zoom sessions?*
- *In what ways has it increased your awareness/knowledge?*

Topic 5 – Most Significant Change

10. Providing as much detail as possible, what is the most significant change that has happened in your life as a result of the remote PAWS Your Stress sessions?

Prompt

- *After participant is done sharing story, prompt for any relevant details or examples.*
- *For those that have attended in-person: Physical touch was a large component of the in-person program, which is not able to be replicated in the Zoom sessions. What replaces the physical touch aspect of meeting with the dogs/animals?*

Conclusion

11. If you could sum up how the remote program has influenced you in 1 – 2 sentences, what would you say?

12. Is there anything that we did not discuss today that you wanted to bring up about the remote PAWS Your Stress sessions?

Appendix G

Questionnaire recruitment emails

A. Initial contact

Hi _____,

To better understand the effects of the live PAWS Your Stress Zoom sessions, the team is continuing their evaluation efforts. We believe that as a therapy dog handler, you can provide a unique perspective on the effects that the remote program might have on the people who attend the sessions (USask students, staff, faculty, as well as the broader community).

We have developed a brief questionnaire for you to complete about your experience with people who attend the remote therapy dog sessions (See below).

If you are interested in participating, **please send me an email with your responses by Wednesday March 31st**. Your participation in this brief questionnaire is voluntary, and any identifying information you write in your response (e.g., all human and animal names, locations, etc.) will be kept confidential (i.e., identifying information will be removed from any work that we share with the public, such as papers, posters, infographics, and presentations).

1) What do you perceive to be the most significant change (effect) that people experience as a result of attending PAWS Your Stress remotely via Zoom? Why do you perceive this to be the most significant change?

Please provide as much detail as possible, including any specific examples you may have that illustrate your points (e.g., specific interactions you've had with people in the Zoom sessions, comments you've received from session attendees, etc.)

2) If you have volunteered as a handler on Zoom AND in person on campus: Do you think there are differences in the effects attendees experience as a result of attending PAWS Your Stress in-person versus remotely via Zoom?

- *If so, what are the differences? Why do you think there are differences?*
- *If not, why do you think there are no differences?*

Please provide as much detail as possible, including any specific examples you may have that illustrate your points (e.g., specific interactions you've had with people in-person or in the Zoom sessions; comments you've received from session attendees, etc.)

If you have any questions or comments, please contact myself or Dr. Colleen Dell (colleen.dell@usask.ca).

B. Second contact

Hi _____,

You may have received an email earlier this month inviting you to take part in a brief questionnaire as part of PAWS Your Stress' evaluation efforts. Please see the brief questionnaire below for you to complete about your experience with people who attend the remote therapy dog sessions.

If you are interested in participating, **please send me an email with your responses by Wednesday March 31st.**

1) What do you perceive to be the most significant change (effect) that people experience as a result of attending PAWS Your Stress remotely via Zoom? Why do you perceive this to be the most significant change?

Please provide as much detail as possible, including any specific examples you may have that illustrate your points (e.g., specific interactions you've had with people in the Zoom sessions, comments you've received from session attendees, etc.)

2) If you have volunteered as a handler on Zoom AND in person on campus: Do you think there are differences in the effects attendees experience as a result of attending PAWS Your Stress in-person versus remotely via Zoom?

- *If so, what are the differences? Why do you think there are differences?*
- *If not, why do you think there are no differences?*

Please provide as much detail as possible, including any specific examples you may have that illustrate your points (e.g., specific interactions you've had with people in-person or in the Zoom sessions; comments you've received from session attendees, etc.)

Your participation in this brief questionnaire is voluntary, and any identifying information you write in your response (e.g., all human and animal names, locations, etc.) will be kept confidential (i.e., identifying information will be removed from any work that we share with the public, such as papers, posters, infographics, and presentations).

C. Final contact

Hi _____,

This is a final invitation to participate in our brief PAWS Your Stress survey. If you are interested in participating, **please send me your responses to the question(s) below by March 31, 2021.** As an animal handler, you play a crucial role in the PAWS Your Stress program, and your thoughts are highly valued in our evaluation efforts.

1) What do you perceive to be the most significant change (effect) that people experience as a result of attending PAWS Your Stress remotely via Zoom? Why do you perceive this to be the most significant change?

Please provide as much detail as possible, including any specific examples you may have that illustrate your points (e.g., specific interactions you've had with people in the Zoom sessions, comments you've received from session attendees, etc.)

2) If you have volunteered as a handler on Zoom AND in person on campus: Do you think there are differences in the effects attendees experience as a result of attending PAWS Your Stress in-person versus remotely via Zoom?

- *If so, what are the differences? Why do you think there are differences?*
- *If not, why do you think there are no differences?*

Please provide as much detail as possible, including any specific examples you may have that illustrate your points (e.g., specific interactions you've had with people in-person or in the Zoom sessions; comments you've received from session attendees, etc.)

Importantly, your participation in this brief questionnaire is voluntary, and any identifying information you write in your response (e.g., all human and animal names, locations, etc.) will be kept confidential.

Appendix H

Brief email questionnaire for handlers

1) What do you perceive to be the most significant change (effect) that people experience as a result of attending PAWS Your Stress remotely via Zoom? Why do you perceive this to be the most significant change?

Please provide as much detail as possible, including any specific examples you may have that illustrate your points (e.g., specific interactions you've had with people in the Zoom sessions, comments you've received from session attendees, etc.)

2) If you have volunteered as a handler on Zoom AND in person on campus: Do you think there are differences in the effects attendees experience as a result of attending PAWS Your Stress in-person versus remotely via Zoom?

- *If so, what are the differences? Why do you think there are differences?*
- *If not, why do you think there are no differences?*

Please provide as much detail as possible, including any specific examples you may have that illustrate your points (e.g., specific interactions you've had with people in-person or in the Zoom sessions; comments you've received from session attendees, etc.)

Appendix I Most Significant Change Voting Results

Results from most significant change voting by PAWS Your Stress team members (n = 6)

Story Title	Theme	Number of votes	Reasons for choosing each response (Summary)
01. 'A welcome break from studies, COVID stress, etc.'	Mental health, COVID-19	0	NA
02. 'A sense of connectedness in this pandemic'*	Connection	5	<ul style="list-style-type: none"> - 'I like how they talked about connectedness during such an isolating time. This program made that happen whereas if this program wasn't around, everyone would be even more isolated.' - 'it is context-specific - we cannot ignore the effects of the pandemic and people's need to connect with others during this time of shared stress and trauma' - 'it explained how the online program can provide a source of connection to students through a distance, which is a goal of the online program' - 'everyone has been impacted by this pandemic differently but, because of the social distancing and closing of businesses we are all losing connectedness and that is something that as humans we need to remain healthy and happy' - 'at this time, opportunities for connection are very rare.'
03. Engagement, connectedness, & relaxation	Connection, mental health	0	NA
04. Reduced loneliness and isolation during COVID*	Mental health, COVID-19	2	<ul style="list-style-type: none"> - 'reduced loneliness' - 'it attributed the online program as a source of social interaction with others and pets, which the USask community may be disproportionately experiencing during the pandemic'

Story Title	Theme	Number of votes	Reasons for choosing each response (Summary)
05. 'Increase in happiness...decrease in stress'	Mental health	1	- 'the whole purpose of therapy is to decrease our stress and increase happiness to promote positive health in individuals.'
06. 'Disconnection from stresses, connection to something outside of ourselves/our lives'*	Mental health, Connection	5	<p>- 'I really like the idea of connecting with nature as another significant change that maybe isn't always thought of. Most of our ability to "escape" is gone and I think it is significant that we could be offering an escape for people.'</p> <p>- 'connecting to something outside of ourselves relates to number 2 and 4. There is also the aspect of people specifically choosing to connect with animals, and not just people.'</p> <p>- 'all of the questions they raise.'</p> <p>- 'it draws parallels to connection (e.g., to others from a distance) and disconnection. I thought it was interesting that they framed disconnection in the context of the pandemic (i.e., disconnecting from others) but also in a positive sense, as a way to disconnect from stress/anxiety from uncertainty. I think these thoughts/comments would not be as apparent if framed outside of a pandemic context'</p> <p>- 'at this time, opportunities for connection are very rare.'</p>
07. 'Feel less isolated, less lonely, and more connected to USask'	Mental health	1	- 'because it is so important for humans to feel that connectedness. I think feeling less isolated and less lonely can help us feel more positive about the future'
08. 'Smiles, positive memories...positive thoughts and distractions'	Mental health	0	NA

Story Title	Theme	Number of votes	Reasons for choosing each response (Summary)
09. 'Willingness to be open and speak freely'*	Connection	2	<p>- 'I would not have said this is what I witnessed'</p> <p>- 'I think it is super significant that someone thinks people are more willing to talk about their struggles when a dog is there. I think the openness and fun factor of this program is unique and can be seen as a huge part of the impact this program has made.'</p>
10. 'New knowledge about therapy dogs'	Therapy dog knowledge	1	- 'it's unique - and is not what is happening in in person visits'
11. 'Decreased stress and anxiety'	Mental health	1	- 'emerging research shows us that people in Saskatchewan are dealing with much more anxiety than a year ago, so that handlers are observing a decrease in anxiety when participants visit is significant indeed'

*Questionnaire respondents who were invited to participate in a follow-up interview

Appendix J

General Interview Guide for Handlers

1. Summarize what the handler noted in their questionnaire response. What most significant change(s) did they identify?

- **If handler only noted one MSC** in their questionnaire response
 - *Why do you think X (MSC identified in questionnaire response) is a **more** significant change than the other changes/effects that you identified just now?*

- **If handler noted multiple MSCs** in their questionnaire response
 - *In your questionnaire response you mentioned a few different changes/effects that attendees may experience as a result of the Zoom sessions: X, Y, Z. Which of these changes do you think is the **most** significant? Why?*

2. Follow up on any explanations the handler provided in their questionnaire response (if not already discussed in Q1). *Can you elaborate on X explanation that you gave in your questionnaire response?*