

DO CANINE-ASSISTED INTERVENTIONS WORK FOR EVERYONE?

John-Tyler Binfet, Freya L.L. Green, Rebecca J.P. Godard, Madisyn M. Szygula, Camille X. Rousseau, Jordy Decker

Binfet et al.
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 **CABI** Human – Animal Interactions

RESEARCH

A mixed-methods examination of an on-campus canine-assisted intervention by gender: Women, men, and gender-diverse individuals' self-reports of stress-reduction and well-being

John-Tyler Binfet^{1*}, Freya L.L. Green¹, Rebecca J.P. Godard², Madisyn M. Szygula³, Camille X. Rousseau¹, and Jordy Decker¹

Abstract

On-campus canine-assisted interventions (CAIs) provide opportunities for college students to interact with therapy dog-handler teams and are considered a low-cost and low-barrier way for students to reduce their stress and bolster their well-being. Across studies, we see participant samples comprised predominantly of women participants. The aim of this study was to assess the effects of a 20-min CAI on the well-being of women ($n = 80$), men ($n = 54$), and gender-diverse ($n = 28$; i.e., non-binary, genderfluid, and two-spirit) participants. Across all gender conditions, significant pre-to-post increases in well-being (i.e., campus connectedness, happiness, positive affect, or optimism) and decreases in ill-being (i.e., homesickness, loneliness, negative affect, anxiety, or stress) were found. Controlling for pre-test scores, there was no significant effect of gender on any of the well-being or ill-being. Findings corroborate previous research attesting to the efficacy of CAIs in enhancing the social and emotional well-being of students and suggest that CAIs are equally effective across participants of varied genders.

Keywords: canine-assisted interventions, gender, gender-diverse participants, therapy dogs, therapy dog-handler team, stress-reduction, well-being, college, university



BARK.

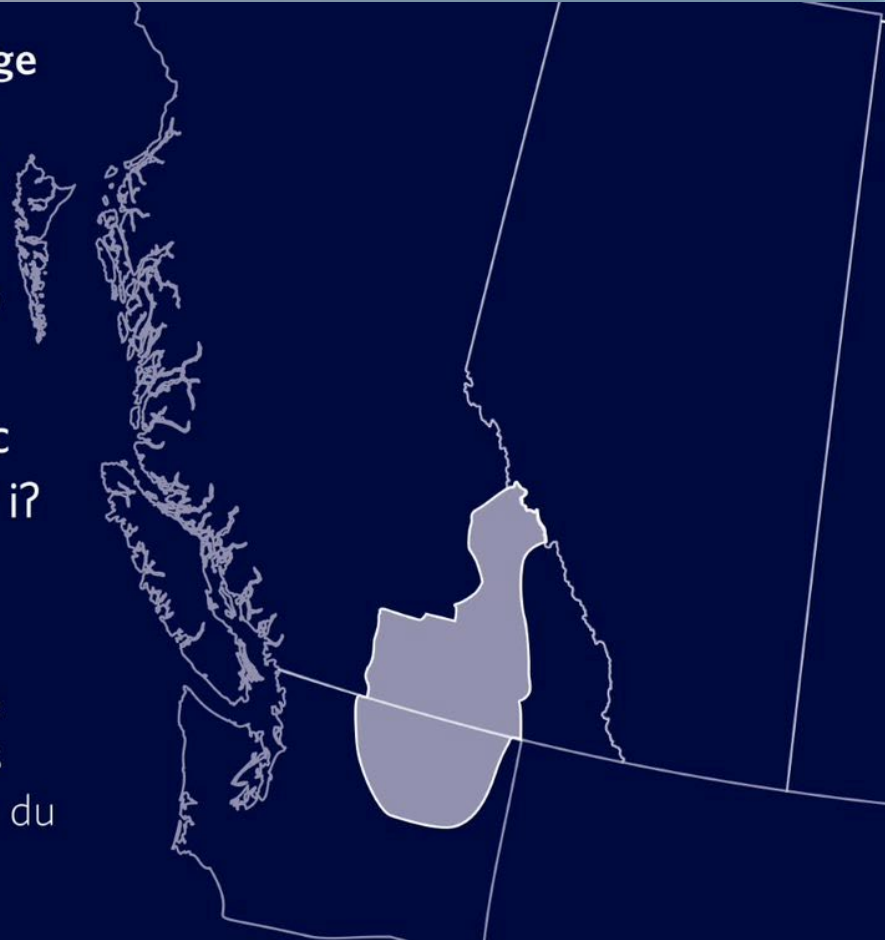
BUILDING ACADEMIC RETENTION THROUGH K9S



**We respectfully acknowledge
that the land on which
we gather is the unceded
territory of the
Syilx (Okanagan) Peoples**

**k^wu ɬə c'uləl'uʔs iʔ |
təm^wulaʔx^ws iʔ syilx tali əc
haʔ stim aɬiʔ əc mistim axaʔ iʔ
təm^wulaʔx^wselx lut pənkiŋ
kɪ swit t'ə x^wic'xm^wselx**

Nous tenons à souligner que
les terres sur lesquelles nous
sommes rassemblés font partie du
territoire non cédé des
Syilx (Okanagan)



OVERVIEW

- Overview of the B.A.R.K. Program
- Gender Study (design, methods, key findings)
- **Conducting gender-inclusive programs or research**



OVERVIEW OF THE BARK PROGRAM



- Standing for “**Building Academic Retention through K9s**”, B.A.R.K. is a canine-assisted intervention based at the University of British Columbia.
- Founded in 2012, the B.A.R.K. program now has over 60 handler-therapy dog teams and routinely sees 4,000 visits from University students, staff, and faculty, first-responders, seniors, and elementary-, middle-, and high-school students.

OVERVIEW OF THE BARK PROGRAM

Our Mission:

- To support students facing challenges around stress and/or homesickness
- To foster connectedness to campus (campus affinity)
- To provide a framework within which student volunteers and research assistants may be mentored
- Inclusivity / Diversity-sensitive

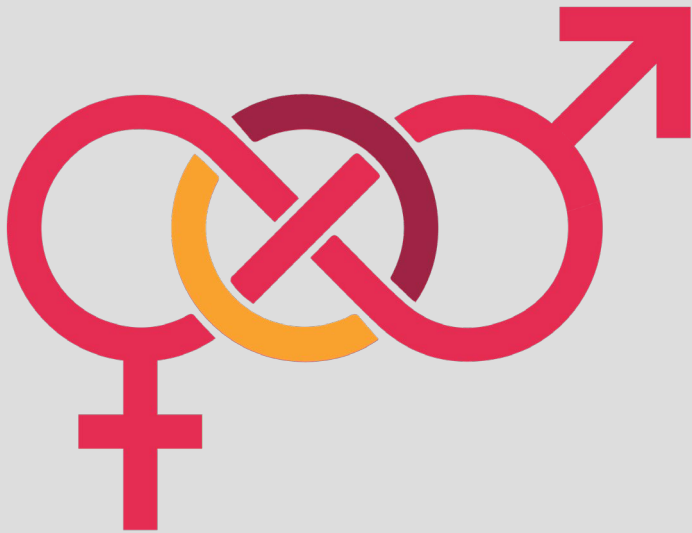


USEFUL ACRONYMS

- HAI = Human-animal interaction
- AAI = Animal-assisted intervention
- CAI = Canine-assisted intervention
- DEI = Diversity, Equity, and Inclusion



USEFUL GENDER TERMINOLOGY



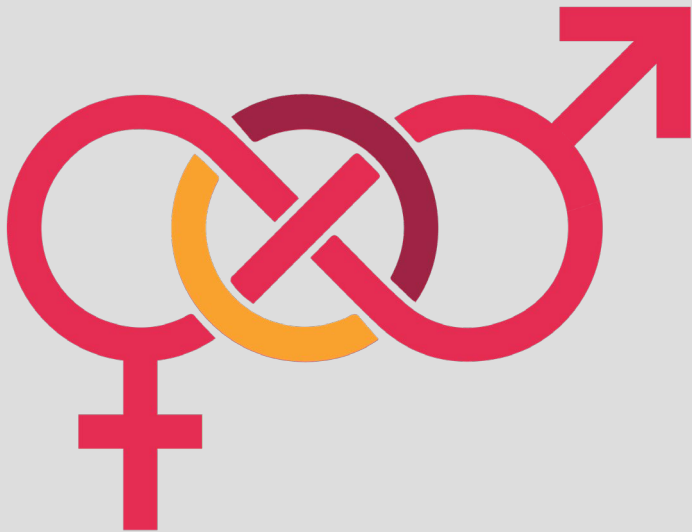
Sex refers to the biological construct of one's identity, defined on an anatomical, hormonal, or genetic basis (APA, 2024)

Examples: Male, Female, Intersex

Gender refers to one's personal or internal sense of their identity (APA, 2024)

Examples: Man, Woman, Non-Binary, Two-spirit, Genderqueer, Genderfluid, Agender

USEFUL GENDER TERMINOLOGY



Non-binary is used to “describe people who feel their gender cannot be defined within the margins of gender binary. Instead, they understand their gender in a way that goes beyond simply identifying as either a man or woman” (LGBT Foundation, 2017)

Genderfluid is used to describe people whose gender expression or gender identity (or both) changes over time (Katz-Wise, 2020)

Two-spirit “refers to a person who identifies as having both a masculine and a feminine spirit, and is used by some Indigenous people to describe their sexual, gender and/or spiritual identity” (Researching for LGBTQ2S+ Health, 2023)

DOES IT WORK?

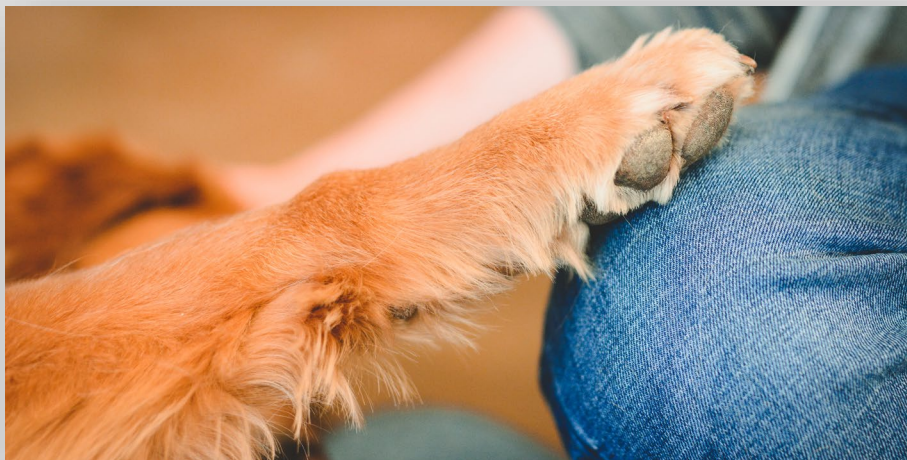
- Interacting with therapy dogs is beneficial to University Students' well-being

Communication
Friendships Depression
Belonging Positive Affect
Aggression **Social connections** Happiness
Oxytocin
Homesickness Pro-social behaviours Decreasing Cortisol
Empowerment Anxiety **Self-esteem**
Stress-reduction Self-regulation
Campus Connectedness Support networks
Withdrawal **Loneliness**



Barker et al., 2016; Binfet & Passmore, 2016; Binfet et al., 2022; Crossman et al., 2015; Kivlen et al., 2022; Muckle & Lasikiewicz, 2017; Peel et al., 2023; Pendry & Vandagriff, 2019; Quintana et al., 2019; Sokol & Martin, 2021; Ward-Griffin et al., 2018

HOW DOES IT WORK?



ANTHROZOÖS
2022, VOL. 35, NO. 1, 1–22
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 **Routledge**
Taylor & Francis Group



The Importance of Client–Canine Contact in Canine-Assisted Interventions: A Randomized Controlled Trial

John-Tyler Binfet^a, Freya L. L. Green^a, and Zakary A. Draper^b

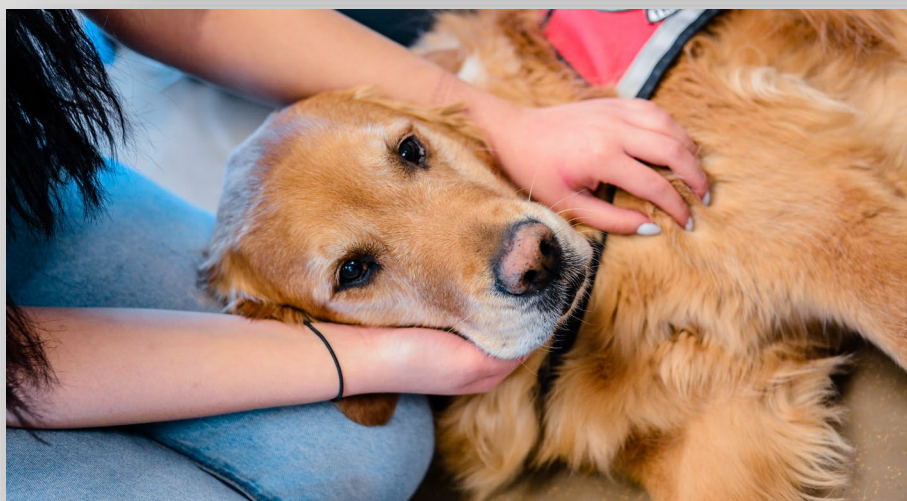
^aFaculty of Education, University of British Columbia, Kelowna, BC, Canada; ^bDepartment of Psychology, University of British Columbia, Kelowna, BC, Canada

ABSTRACT

Researchers have claimed that canine-assisted interventions (CAIs) contribute significantly to bolstering participants' wellbeing, yet the mechanisms within interactions have received little empirical attention. The aim of this study was to assess the impact of client–canine contact on wellbeing outcomes in a sample of 284 undergraduate college students (77% female; 21% male, 2% non-binary). Participants self-selected to participate and were randomly assigned to one of two canine interaction treatment conditions (touch or no touch) or to a handler-only condition with no therapy dog present. To assess self-reports of wellbeing, measures of flourishing, positive and negative affect, social connectedness, happiness, integration into the campus community, stress, homesickness, and loneliness were administered. Exploratory analyses were conducted to assess whether these wellbeing measures could be considered as

KEYWORDS

Canine-assisted intervention;
human–animal interaction;
stress reduction; university
student; wellbeing



WHO DOES IT WORK FOR?

Citation	Sample size (N)	Female (%)	Male (%)	Non-binary (%)	Two-spirit (%)	Other genders (%)
Banks <i>et al.</i> (2018)	56	76.8	23.2	—	—	—
Barker <i>et al.</i> (2016)	78	76.9	23.1	—	—	—
Binfet (2017)	163	78	—	—	—	—
Binfet <i>et al.</i> (2022a)	284	77	21	2	—	—
Binfet <i>et al.</i> (2022b)	467	80.9	18.8	0.3	—	—
Binfet and Passmore (2016)	86	82.1	—	—	—	—
Dell <i>et al.</i> (2022)	140	Did not report sex/gender breakdown				
Dell <i>et al.</i> (2021)	94	92% women	—	—	—	—
	372	82% women	—	—	—	—
Fiocco and Hunse (2017)	61	77.1	22.9	—	—	—
Gebhart <i>et al.</i> (2020)	57	77.2	22.8	—	—	—
Grajfoner <i>et al.</i> (2017)	132	64.4	—	—	—	—
Haefelin <i>et al.</i> (2020)	165	Did not report sex/gender breakdown				
Hall and Duke (2021)	21	"Majority"	—	—	—	—
House <i>et al.</i> (2018)	343	71.7	26.7	—	—	0.6% did not disclose
Hunt <i>et al.</i> (2018)	57	74	26	—	—	—
Islam <i>et al.</i> (2017)	20	100	—	—	—	—
Kil (2021)	40	62.5	37.5	—	—	—
Kivlen <i>et al.</i> (2022)	26	92.3	7.7	—	—	—

Citation	Sample size (N)	Female (%)	Male (%)	Non-binary (%)	Two-spirit (%)	Other genders (%)
Lalonde <i>et al.</i> (2020)	4	100	—	—	—	—
Lauriente and Kopp (2018)	206	—	—	—	—	—
Moore <i>et al.</i> (2022)	171	77	21	2	—	—
Peel <i>et al.</i> (2023)	265	63.0	35.8	—	—	1.1% did not disclose
Peña Gil <i>et al.</i> (2020)	64	89.1	—	—	—	—
Pendry <i>et al.</i> (2019)	307	61.9	—	—	—	—
Pendry <i>et al.</i> (2020)	309	78.6	—	—	—	—
Pendry and Vandagriff (2019)	249	83.5	—	—	—	—
Quintana <i>et al.</i> (2019)	530	63.6	—	—	—	—
Sarrafchi <i>et al.</i> (2022)	1155	70	30	—	—	—
Spruin <i>et al.</i> (2021)	94	60.6	39.4	—	—	—
Thelwell (2019)	80	47.5	52.5	—	—	0
Trammell (2019)	44	75	—	—	—	—
Ward-Griffin <i>et al.</i> (2018)	357	78	—	—	—	—
Williams <i>et al.</i> (2018)	39	69.2	30.7	—	—	—
Wood <i>et al.</i> (2018)	131	73.3	26.7	—	—	—

LITERATURE REVIEW



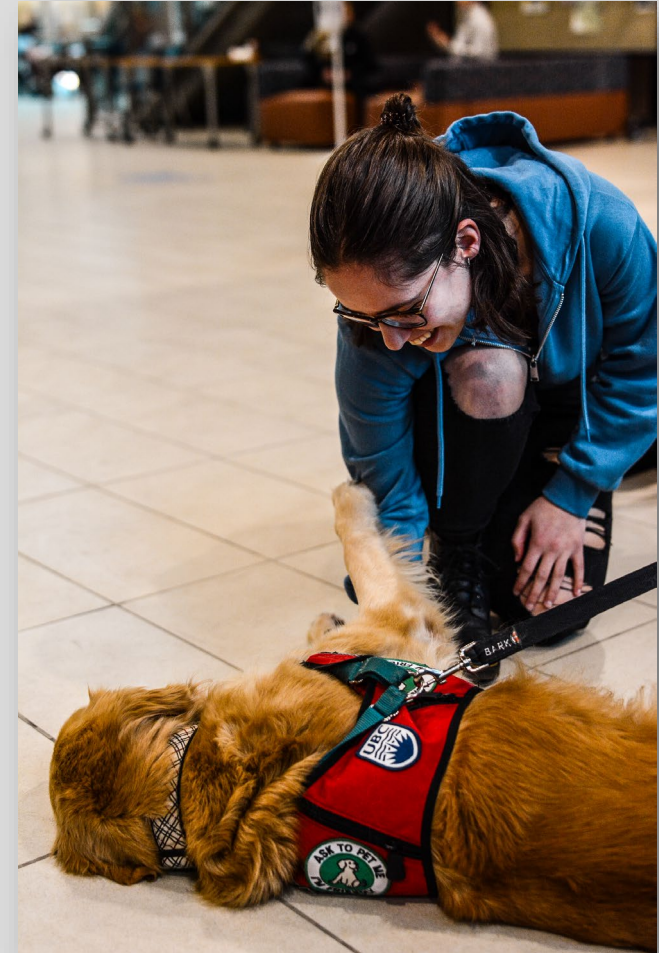
Ward-Griffin (2018)

- $N = 246$
- Procedure: Undergraduate student participants completed pre-and-post CAI measures.
- Dosage: Self-selected (30-minutes on average)
- Findings: No gender differences in post-test stress, happiness, or energy after a drop-in style, mixed gender, CAI.

LITERATURE REVIEW

Dell et al. (2015)

- $N = 726$
- Procedure: Undergraduate students participated in a CAI and completed post-session measures
- Dosage: Self-selected (few mins – 60 mins)
- Findings: Minimal differences between genders. Females were more likely to attend CAI to destress (29% vs 14% of males), and males were more likely to attend “to be with the dogs” (p.344) than females (52% vs 30%).



RESEARCH GAP

- CAIs are framed as being a low-cost, low-barrier, and accessible way to provide stress-reduction opportunities for students.
- Yet, little research has examined whether one's gender affects well-being outcomes derived.



DIVERSITY, EQUITY, AND INCLUSION



- Universities are increasingly seeking to demonstrate their commitment to Diversity, Equity, and Inclusion (DEI)
- Important to develop equitable and inclusive initiatives to support well-being on-campus.

PROCEDURE



Human (H21-02807) and Animal (A22-0185) ethics were obtained.



Participants recruited through posters placed around campus, via social media, and via a student research portal.



Based on their identified gender and self-selected gender grouping, participants were assigned on a first-come, first-served basis to sessions.



Participants completed brief pre-test measures (10-15 minutes)

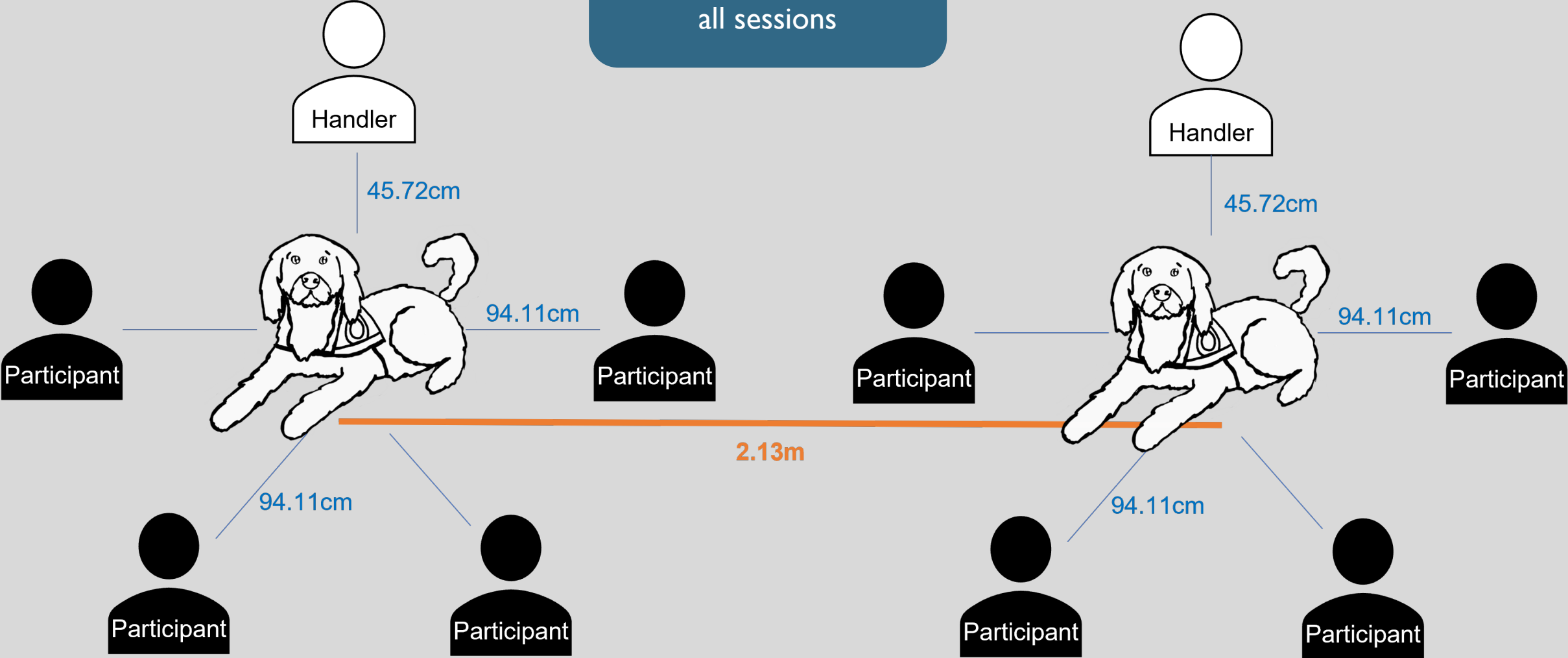


Participants were randomly assigned to a dog-handler station to interact with handlers and therapy dogs (20 minutes)



Participants completed brief post-test measures (10-15 minutes)

Canine welfare
monitored throughout
all sessions



PARTICIPANTS: STUDENTS

$N = 163$

54% Caucasian
15% South Asian
14% Mixed Race

45% in Women's group
33% in Men's group
22% in Non-binary/Two-Spirit/Genderfluid group

Age = 20.6 years
 $SD = 3.2$
Range = 17-46

49% Women
33% Men
17% Non-Binary
and other genders
1% Chose not to
disclose

PARTICIPANTS: THERAPY DOGS & HANDLERS

Handlers

$N = 15$

100% Caucasian

87% Women, 7% Men, 7% Self-described

Age = 40.0 years, $SD = 16.6$, Range = 23-69

Av. Experience = 4.5 years

Therapy Dogs

$N = 15$

66.7% Female, 33.3% Male

8 Pure-Breeds, 7 Mixed

Age = 5.8 years, $SD = 2.97$
Range = 1-10

Av. Experience = 3.5 years

SELF-REPORT MEASURES

Well-being

Campus
Connectedness Scale
(1-item)

Happiness Scale
(1-item)

Homesickness
Scale
(1-item)

Loneliness Scale
(1-item)

Demographic
Questionnaire
(Pre-test Only)

Engagement
Questionnaire
(Post-test only)

Positive Affect
(PANAS; Watson et al., 1998)
 $\alpha = .87$

State Optimism
Measure
(Millstein et al., 2019)
 $\alpha = .92-96$

Negative Affect
(PANAS; Watson et al., 1998)
 $\alpha = .88$

State Anxiety
Inventory Scale
(Zsido et al., 2020)
 $\alpha = .91$

Session
Questionnaire
(Post-test only)

Open-ended
prompts
(Post-test only)

QUANTITATIVE RESULTS: BY GENDER

There were no significant effects of gender group for any outcome variable (all $p > .30$, $h^2 \leq .01$)

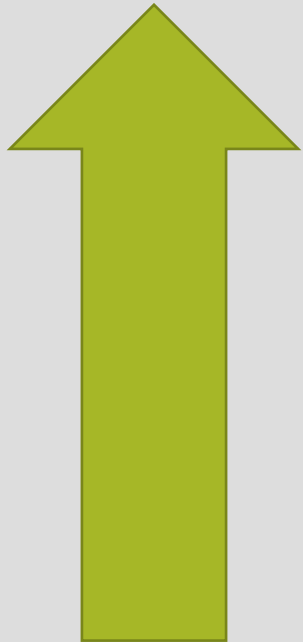


QUANTITATIVE RESULTS: PRE-TO-POST-TEST

Participants experienced significant:

- **Reductions in stress** from pre-intervention ($M = 3.26, SD = 0.98$) to post-intervention ($M = 1.78, SD = 0.80$), $t(161) = -18.62, p < .001, d_z = -1.46$.
- **Reductions in homesickness** from pre-intervention ($M = 2.25, SD = 1.26$) to post-intervention ($M = 1.80, SD = 1.01$), $t(161) = -7.54, p < .001, d_z = -0.59$.
- **Increases in happiness** from pre-intervention ($M = 3.16, SD = 0.76$) to post-intervention ($M = 4.11, SD = 0.85$), $t(161) = 12.72, p < .001, d_z = 1.00$.
- **Reductions in loneliness** from pre-intervention ($M = 2.59, SD = 1.05$) to post-intervention ($M = 1.74, SD = 0.82$), $t(161) = -11.31, p < .001, d_z = -0.89$.

QUANTITATIVE RESULTS: PRE-TO-POST-TEST



**Connectedness to
Campus**

Happiness

Positive Affect

Optimism



Anxiety

Homesickness

Loneliness

Negative Affect

Stress

QUALITATIVE RESULTS

“How did interacting with the therapy dogs make you feel?”

1. How did interacting with the therapy dogs make you feel? Please provide as much detail as possible.

The therapy dogs really helped calm me down. Before I was feeling super stressed with the amount of school work I have. I feel recentered and grounded, in reality I have time to do work. The interaction made me feel included in school community.

– Participant 122; Positive Affect (Calm/Relaxed)

1. How did interacting with the therapy dogs make you feel? Please provide as much detail as possible.

I have a dog in my home in Korea and I missed her a lot which led me to have so much homesick & depression. By interacting with the therapy dog, I felt less lonely & less homesickness. It was also a good opportunity for me to be more connected with our school community as a first year student.

– Participant 104; Helped (Reduced Homesickness/Loneliness) and Helped (Socially)

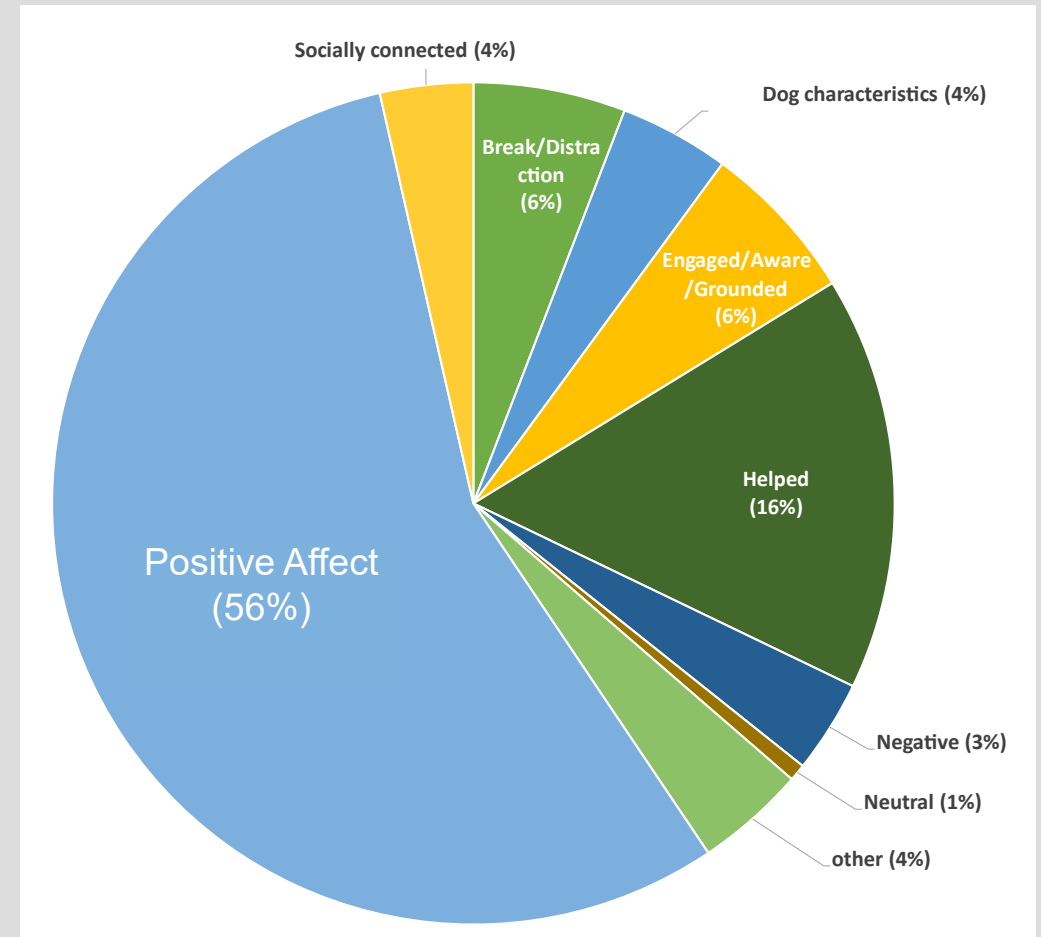


Fig 1. Pie chart illustrating how interacting with therapy dogs made participants feel collectively

QUALITATIVE RESULTS

“How did interacting with the therapy dogs make you feel?”

Table 1. Thematic Analysis by Gender Condition/Group

Themes	Woman		Men		Non-Binary/Two Spirit/Gender Fluid	
	n	%	n	%	n	%
Break/Distracton	6	4.2	10	9.9	2	3.1
Dog characteristics	7	4.9	2	2.0	4	6.3
Engaged/Aware/Grounded	5	3.5	7	6.9	7	10.9
<u>Helped - All</u>	26	18.2	14	13.9	9	14.1
- <i>General</i>	3	2.1	1	1.0	2	3.1
- <i>Improved mood</i>	5	3.5	3	3.0	2	3.1
- <i>Homesickness/Loneliness</i>	2	1.4	1	1.0	0	0.0
- <i>Stress/Anxiety</i>	16	11.2	9	8.9	5	7.8
Negative	5	3.5	3	3.0	3	4.7
Neutral	1	0.7	1	1.0	0	0.0
Other	10	7.0	3	3.0	0	0.0
<u>Positive Affect - All</u>	79	55.2	55	54.5	38	59.4
- <i>Calm/Relaxed</i>	33	23.1	21	20.8	12	18.8
- <i>Comfortable/Safe</i>	12	8.4	7	6.9	8	12.5
- <i>General</i>	2	1.4	5	5.0	1	1.6
- <i>Happy</i>	28	19.6	18	17.8	17	26.6
- <i>Heard/Valued/Loved</i>	4	2.8	4	4.0	0	0.0
Socially connected	4	2.8	6	5.9	1	1.6
total	143		101		64	

“Is there anything else you could share to help us understand your experience today?”

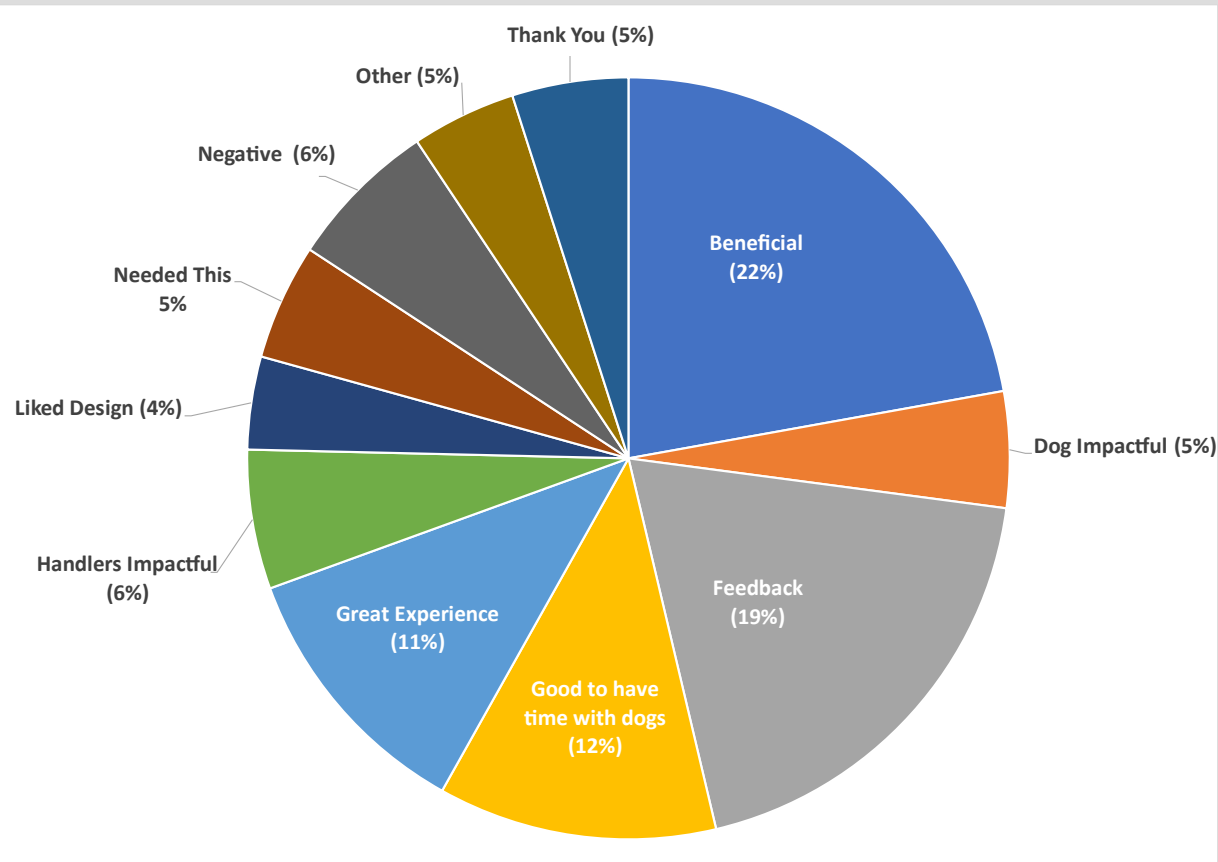


Fig 3. Pie chart illustrating open-ended, prompt-free descriptions of participant's experience

3. Is there anything else you could share to help us understand your experience today?

The small group controlled setting was very welcoming and easy to join, knowing I was allowed to just be there and pet was very helpful for my anxiety.

Gender Study

7

– Participant 40; Beneficial

3. Is there anything else you could share to help us understand your experience today?

Please continue incorporating new and innovative methods involving dogs into education. It is a beautiful solution to so many complex problems in a conventional classroom.

Gender Study

7

– Participant 61; Feedback

DISCUSSION

- Findings contribute to literature attesting to the benefits of CAIs on-campus.
- Corroborates prior literature suggesting that CAIs can ameliorate stress, homesickness, loneliness, negative affect, anxiety, happiness, connectedness to campus, and positive affect.
- Illuminated that students feel more optimistic after attending a CAI.



DISCUSSION



- Both qualitative and quantitative findings suggest gender does not impact well-being outcomes from attending a 20-minute CAI on-campus.
- Holds implications for post-secondary education initiatives seeking to bolster student well-being.

STRENGTHS & LIMITATIONS

- Embraces a DEI lens on a well-known and popular intervention
- Honoured participants identification of gender
- Highly experienced therapy dog-handler teams
- Duration of intervention is feasible.
- Ability to recruit non-binary students
- Mixed-methods design – incorporated both qualitative and quantitative
- Sample size across conditions is unequal
- Restricted measures – study could have been strengthened by multiple measures for each well-being outcome.
- Did we fully honour all diverse genders?

FUTURE DIRECTIONS

- Compare the outcomes for men, women, non-binary, two-spirit, and genderfluid individuals attending either a gender-based group or a mixed-gender group CAI.



RESEARCH

A mixed-methods examination of an on-campus canine-assisted intervention by gender: Women, men, and gender-diverse individuals' self-reports of stress-reduction and well-being

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Keywords: canine-assisted interventions, gender, gender-diverse participants, therapy dogs, therapy dog-handler team, stress-reduction, well-being, college, university

CONDUCTING GENDER-INCLUSIVE RESEARCH/PROGRAMS



TRAINING



- Program staff
- Volunteers
- Handlers

DEMOGRAPHIC QUESTIONNAIRES



1. Do we really need to gather information on gender or sex?

Is this information important for our research?

2. If so, what specific information do we need?

Do we need to gather information about participants' biological sex? Or is their gender identity more relevant?

3. How can we gather demographic information on participants' gender in an inclusive manner?

DEMOGRAPHIC QUESTIONNAIRES

Are you male or female?

Male ____ / Female ____

What is your gender? *

You can give only one answer.

- Male
- Female
- Other 

Your gender:

- Female
- Male

2 What was this person's **sex at birth**?

Sex refers to sex assigned at birth.

- Male
- Female
-

3 What is this person's **gender**?

Refers to current gender which may be different from sex assigned at birth and may be different from what is indicated on legal documents.

- Male
- Female

Or please specify this person's gender:

DEMOGRAPHIC QUESTIONNAIRES

How do you identify?

We understand that gender identity is complex, and that it can be difficult to convey that by checking boxes. You may provide additional information in the “prefer to self-describe” option if you wish.

- Man
- Woman
- Non-Binary
- Two-Spirit
- Genderfluid
- Agender
- Prefer to self-describe:

In your own terms, please describe your gender identity:

PRONOUNS

HELLO

My pronouns are

He/Him/His

HELLO

My pronouns are

She/Her/Hers

HELLO

My pronouns are

HELLO

My pronouns are

Xe, Xir, Xirs

HELLO

My pronouns are

They/Them/Theirs

HELLO

My pronouns are

Ze/Zir/Zirs

HELLO

My pronouns are

She/They

HELLO

My pronouns are

Any

HELLO

My pronouns are

He/They

HOW SHOULD I INCLUDE PRONOUNS?

- Introductions
- Respectfully asking
- Pronoun buttons/Name Tags
- Email signatures
- Social Media



WHAT DO I DO IF I MISGENDER SOMEONE OR USE THE WRONG PRONOUN?

I was telling someone about your program today! I told her about your work with horses and she was so interested. I said “Oh you must reach out to Skye, he’s.... Sorry she’s wonderful!”

I’m sorry I misgendered you today, I do not want to hurt you. I will practice more and make sure I don’t make the same mistake again.

DO:

- Correct yourself
- Apologize briefly
- Practice

DON’T:

- Get defensive
- Deny the mistake
- Act like it doesn’t matter
- Make excuses
- Blame other people
- Avoid the situation

WHAT DO I DO IF SOMEONE ELSE IS USING THE WRONG PRONOUNS FOR SOMEONE ELSE?

I met Sam today, she really enjoyed meeting my dog Cooper!

Oh I'm glad you've met Sam. Just a polite reminder that Sam uses He/Them pronouns.

Oh, thank you for reminding me. I must make sure I don't misgender them again.

You're welcome. Just apologize and correct yourself if you find yourself making a mistake again. In the meantime, I can help you practice!

TO REFLECT ON...

- What are other ways that we can ensure our programs and research are inclusive?
- How can we incorporate gender-inclusive language into our programs?
- How can we facilitate the most positive interactions between our program staff/volunteers and our clients?



Questions?

Contact

Email: bark.dogtherapy@ubc.ca

Website: bark.ok.ubc.ca

Social Media



BARK UBCO



BARKUBC



BARKUBC



THE UNIVERSITY
OF BRITISH COLUMBIA

BARK

BUILDING ACADEMIC RETENTION THROUGH K9S



Jessita