

**The Community-Based (Virtual) Human-Animal Bond:
An Exploration of the TinyKittens Online Community**

by

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ABSTRACT

Cats are ubiquitous with the internet, yet only a few studies have included both subjects as the focus of their research. The few studies that do include both cats and the internet rarely set out to show the ways in which humans benefit from their involvement with cats on the internet. This study, however, aims to fill that gap by exploring the ways in which a cat-focused virtual community and information world—the TinyKittens online community—benefits its members by nurturing and strengthening the community-based (virtual) human-animal bond. The TinyKittens online community, for the purpose of this study, comprises five Facebook pages, two YouTube live video streams (with synchronous chat), and one Livestream video stream (also with synchronous chat). In this study I analyze the posts and comments written directly by members of the TinyKittens online community to examine how the information they exchange provides them with positive and supportive social interactions that lead to positive emotions. That analysis shows that TinyKittens online community members exhibit five main characteristics: they are happy, supportive individuals; they regularly share personal information; they strive to help other members; they find happiness and relaxation from both the cats and humans in the community; and they care deeply about the well-being of all cats and kittens and develop a bond with the cats in the care of TinyKittens. These results are encouraging. They imply that humans can use the internet as a means of connecting with living beings *other than* humans. While further research would be required in order to show this, I believe the community-based (virtual) human-animal bond can be experienced with any type of animals, domestic or wild.

DEDICATION

This thesis is dedicated to my wonderful, beautiful, adorable best friend and soulmate -- Pippin -- who passed away on December 6th, 2017. My world will never be the same without you.

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TABLE OF CONTENTS

Chapter 1 Introduction	1
1.1 Chapter Overview	1
1.2 Research Gap	4
1.3 Purpose	5
1.4 Research Questions	5
1.5 Chapter Conclusion	6
Chapter 2 Background	8
2.1 Chapter Overview	8
2.2 Definitions	9
2.2.1 [The] Cat.....	9
2.2.2 Emoticons versus Emojis.....	10
2.2.3 Members versus Followers/Subscribers	11
2.2.4 Pet	11
2.2.5 Social Media.....	12
2.2.6 Stickers versus Reactions on Facebook.....	12
2.2.7 Trap-Neuter-Return	13
2.3 Cats & the Internet	14
2.4 Cats	16
2.4.1 The Evolution of the Domestic Cat.....	16
2.4.2 Cat Facts.....	19
2.4.3 Will cats one day take over the world?.....	22
2.5 TinyKittens Society	22
2.5.1 The Main Characters on the TinyKittens Live Video Stream	24
2.5.2 Guest Stars on the TinyKittens Live Video Stream	25
2.6 TinyKittens Social Media	29
2.6.1 The TinyKittens Website	29
2.6.2 TinyKittens Social Media Accounts	31
2.6.3 Social Media Accounts Created by TinyKittens Fans.....	33
2.6.4 The Difference Between an Open and Closed Facebook Page	35
2.7 Personal Involvement	37
2.8 Chapter Conclusion	39
Chapter 3 Literature Review	41
3.1 Chapter Overview	41
3.2 Information & Information Behaviour	43
3.2.1 Information	43
3.2.2 Information Behaviour	44
3.3 Life in the Round & Normative Behaviour	46
3.3.1 The Theory of Life in the Round.....	47
3.3.2 The Theory of Normative Behaviour	49

3.3.3 Applying the Theory of Normative Behaviour.....	50
3.4 Information Worlds.....	52
3.4.1 The Theory of Information Worlds	52
3.4.2 The Development of Information Worlds.....	53
3.4.3 Applying the Theory of Information Worlds	54
3.4.4 Research that has Used the Theory of Information Worlds.....	56
3.5 Virtual Communities	57
3.5.1 Community.....	57
3.5.2 Virtual or Online Communities.....	59
3.5.3 Advantages and Disadvantages of a Virtual Community	64
3.5.4 The Connection Between Information Worlds and Virtual Communities	67
3.6 Biophilia, the Human-Animal Bond, & Oxytocin	68
3.6.1 The Biophilia Hypothesis.....	68
3.6.2 The Human-Animal Bond	71
3.6.3 The Importance of the Human-Animal Bond.....	73
3.6.4 Oxytocin	75
3.6.5 Biophilia, the Human-Animal Bond, and Oxytocin Applied to Online Activity.....	76
3.6.6 The Benefits of Biophilia, the Human-Animal Bond, and Oxytocin for Non-Humans	77
3.7 Chapter Conclusion	79
Chapter 4 Methodology	83
4.1 Chapter Overview	83
4.2 Scope	84
4.3 Sampling	85
4.3.1 TinyKittens Facebook Pages.....	86
4.3.2 TinyKittens Unite Facebook Page.....	88
4.3.3 YouTube and Livestream Chat Comments	89
4.3.4 Selection Bias	89
4.4 Ethical Considerations	91
4.4.1 Unreasonable Expectations of Privacy.....	93
4.4.2 Anonymization of Data	95
4.4.3 Age of Posters or Commenters	95
4.5 Data Collection.....	96
4.5.1 Screenshots.....	97
4.5.1.1 FireShot Lite	97
4.5.1.2 Manual Screen Prints	98
4.5.2 OCR Software	98
4.5.3 Netvizz.....	99
4.5.4 Data Cleaning & Formatting.....	100
4.5.4.1 File Importation.....	100
4.5.4.2 Data from Netvizz.....	100
4.5.4.3 UTC Date and Time	101
4.5.4.4 Customized ID Numbers.....	101
4.5.4.5 Emojis or Emoticons in Text.....	102
4.5.4.6 Text in Comments	104
4.5.4.7 Comments for Analysis	104
4.6 Data Analysis.....	105

4.6.1 Codebook Development	105
4.6.1.1 Selecting Coding Methods	106
4.6.1.2 Elemental Methods, Descriptive Coding.....	107
4.6.1.3 Elemental Methods, Process Coding.....	108
4.6.1.4 Grammatical Methods, Attributes Coding	108
4.6.1.5 Affective Methods, Emotion Coding	109
4.6.1.6 Procedural Methods, Domain and Taxonomic Coding.....	109
4.6.1.7 Other Coding Methods.....	110
4.6.1.8 Code Word Selection.....	111
4.6.2 Coding in NVivo.....	112
4.6.2.1 Imported Files	112
4.6.2.2 Nodes and Codes	113
4.6.2.3 Coding Process, First Pass	114
4.6.3 Thematic Analysis.....	115
4.6.3.1 Code Counts and Frequencies.....	115
4.6.3.2 Attribute Codes	115
4.6.3.3 Process Codes	115
4.6.3.4 Emotion Codes	116
4.6.3.5 Descriptive Codes.....	117
4.6.3.6 Values Codes	118
4.6.3.7 Domain and Taxonomic Codes.....	119
4.6.4 Descriptive Statistics	119
4.7 Chapter Conclusion	119
Chapter 5 Results	121
5.1 Chapter Overview	121
5.2 The Big Picture: Quantitative Review	122
5.2.1 Facebook Pages.....	122
5.2.1.1 Official Facebook Pages.....	122
5.2.1.2 TinyKittens Unite Facebook Page.....	127
5.2.1.3 Conclusions	129
5.2.1.4 Evidence for the Community-Based (Virtual) Human-Animal Bond	131
5.2.2 Coding Counts	131
5.2.2.1 Attribute Codes	132
5.2.2.2 Process Codes	133
5.2.2.3 Emotion Codes	133
5.2.2.4 Descriptive Codes.....	134
5.2.2.5 Values Codes	137
5.2.2.6 Evidence for the Community-Based (Virtual) Human-Animal Bond	137
5.3 The Deep Dive: Coding Review	138
5.3.1 Process Codes	138
5.3.1.1 Search of the Full Data Set	138
5.3.1.2 Observing	140
5.3.1.3 Adopting.....	141
5.3.1.4 Donating.....	142
5.3.1.5 Fostering	143
5.3.1.6 Rescuing	144
5.3.1.7 Volunteering	145
5.3.1.8 Stress Relieving and Relaxing.....	146
5.3.1.9 Information Exchanged	147
5.3.1.10 Evidence for the Community-Based (Virtual) Human-Animal Bond	148

5.3.2 Emotion Codes	149
5.3.2.1 Search of the Full Data Set	149
5.3.2.2 Emotional Context	150
5.3.2.3 Positive Emotions	151
5.3.2.4 Negative Emotions	162
5.3.2.5 Information Exchanged	168
5.3.2.6 Evidence for the Community-Based (Virtual) Human-Animal Bond	169
5.3.3 Descriptive Codes	169
5.3.3.1 Shelly’s Posts	170
5.3.3.2 Comments to Shelly’s Posts	179
5.3.3.3 TinyKittens Unite Posts	185
5.3.3.4 Comments to TinyKittens Unite Posts	192
5.3.3.5 Information Exchanged	202
5.3.3.6 Evidence for the Community-Based (Virtual) Human-Animal Bond	205
5.3.4 Values Codes	205
5.3.4.1 Attitude Codes	206
5.3.4.2 Belief Codes	206
5.3.4.3 Value Codes	207
5.3.4.4 Information Exchanged	207
5.3.4.5 Evidence for the Community-Based (Virtual) Human-Animal Bond	208
5.3.5 Folk Terms	208
5.3.5.1 Names	209
5.3.5.2 Places	218
5.3.5.3 Events	221
5.3.5.4 Phrases	226
5.3.5.5 Items	233
5.3.5.6 Tiny Terms	239
5.3.5.7 Hashtags	242
5.3.5.8 Frequency of Folk Terms	242
5.3.5.9 Information Exchanged	243
5.3.5.10 Evidence for the Community-Based (Virtual) Human-Animal Bond	243
5.4 The Bottom Line: Thematic Review	243
5.4.1 The Findings Tell the Same Story	244
5.4.2 Overall Themes	246
5.5 Chapter Conclusion	246
Chapter 6 Discussion	247
6.1 Chapter Overview	247
6.2 TinyKittens & Normative Behaviour	247
6.2.1 TinyKittens as a Small World	248
6.2.2 Social Norms at TinyKittens	249
6.2.3 Social Types at TinyKittens	250
6.2.4 Worldview at TinyKittens	251
6.2.5 Information Behaviour at TinyKittens	252
6.2.6 TinyKittens and the Theory of Normative Behaviour	253
6.3 TinyKittens as an Information World	255
6.3.1 Chatman’s Theory of Normative Behaviour Is Not Enough	256
6.3.2 Additional Research Scope from the Theory of Information Worlds	258
6.3.3 TinyKittens as an Information World	260

6.4 TinyKittens as a Virtual Community	260
6.4.1 TinyKittens Meets the Definitions of a Virtual Community	261
6.4.2 It is Important that TinyKittens be a Virtual Community	264
6.5 Research Question Answers	264
6.5.1 Research Question #1 What information is exchanged (sought and shared) among members of the TinyKittens online community?	265
6.5.1.1 Process Codes	265
6.5.1.2 Emotion Codes	266
6.5.1.3 Descriptive Codes.....	267
6.5.1.4 Values Codes	268
6.5.1.5 Language and Vocabulary	269
6.5.1.6 Summary of Answer to Research Question #1.....	269
6.5.2 Research Question #2 How does the information exchanged by TinyKittens online community members provide evidence for the community-based (virtual) human-animal bond?	270
6.5.2.1 The Human-Animal Bond Can be Experienced Virtually	270
6.5.2.2 The Community-Based Human-Animal Bond.....	272
6.5.2.3 Summary of Answer to Research Question #2.....	273
6.5.3 Triangulation of Evidence.....	274
6.5.3.1 Theme 1: Happy and Supportive Individuals.....	275
6.5.3.2 Theme 2: Share Personal Information	276
6.5.3.3 Theme 3: Help Other Community Members.....	278
6.5.3.4 Theme 4: Happiness and Relaxation	279
6.5.3.5 Theme 5: Care Deeply about Cats and Kittens.....	280
6.5.3.6 It Is Not All Sunshine and Rainbows.....	281
6.6 Chapter Conclusion	283
Chapter 7 Conclusion	284
7.1 Chapter Overview	284
7.2 Limitations & Future Studies	286
7.3 Contributions to Society	288
References	290
Appendices	302
Appendix A Project Codebook	302
A.1 Attribute Codes.....	302
A.2 Descriptive Codes	303
A.3 Process Codes	308
A.4 Emotion Codes.....	310
A.5 Values Codes.....	311
A.6 Domain and Taxonomic Codes	312
Appendix B TinyKittens & Chat Terminology	313

LIST OF TABLES

Table 1	Number of Followers and Subscribers on TinyKittens' Social Media Accounts	23
Table 2	Number of Followers on TinyKittens' Additional Facebook Pages	23
Table 3	Characteristics of Formal and Informal Virtual Communities as per Poon & Daniel	61
Table 4	TinyKittens' Social Media Accounts In and Out of Scope	84
Table 5	Breakdown of Posts and Comments by Official TinyKittens Facebook Page	87
Table 6	Sub-Groups and Coding Methods Selected for Information Type	107
Table 7	Additional Coding Methods Used in Codebook Development	110
Table 8	Explanations and Examples for Positive Emotion Codes	152
Table 9	Explanations and Examples for Negative Emotion Codes	162
Table 10	Explanations and Examples for Descriptive Codes Found in Shelly's Posts	172
Table 11	Explanations and Examples for Descriptive Codes Found in Comments to Shelly's Posts	179
Table 12	Explanations and Examples for Descriptive Codes Found in Posts on TinyKittens Unite	185
Table 13	Explanations and Examples for Descriptive Codes Found in Comments to Posts on TinyKittens Unite	193
Table 14	Examples of Folk Terms for Names Found in the TinyKittens Online Community	210
Table 15	Examples of Folk Terms for Places Found in the TinyKittens Online Community	218
Table 16	Examples of Folk Terms for Events Found in the TinyKittens Online Community	221
Table 17	Examples of Folk Terms Phrases Found in the TinyKittens Online Community	226
Table 18	Examples of Folk Terms for Items Found in the TinyKittens Online Community	233
Table 19	Examples of <i>Tiny</i> Folk Terms Found in the TinyKittens Online Community	239
Table A1	Attribute Codes, Descriptions, and Examples	302
Table A2	Descriptive Codes, Descriptions, and Examples	303
Table A3	Process Codes, Descriptions, and Examples	309
Table A4	Emotion Codes, Descriptions, and Examples	310
Table A5	Values Codes, Descriptions, and Examples	312

LIST OF FIGURES

Figure 1	Photo of Jasmine	9
Figure 2	Photo of Jasper	9
Figure 3	Photo of Bartlett, Bunny, Grandpa Mason, and Pantsaroo	25
Figure 4	Photo of Cassidy, the Miracle Kitten	25
Figure 5	Photo of the Muppet Kittens' TinySuitcases Event	26
Figure 6	Photo of Pele, Birch, and Elliott	26
Figure 7	Photo of Rula and her three Kittens	27
Figure 8	Photo of Chloe and Ramona with Kittens	27
Figure 9	Photo of Aura's Cleft Palate	27
Figure 10	Photo of Cub	28
Figure 11	Photo of Chloe and Ramona with Kittens	28
Figure 12	Photo of Avory, Arthur, and Ray	28
Figure 13	Photo of Aura During her Endoscopy	28
Figure 14	Photo of Aura Before and After Palate Replacement Surgery	29
Figure 15	Screenshot of TinyKittens Webpage — Cats and Kittens in Our Care	30
Figure 16	Screenshot of TinyKittens Webpage — Feral Colonies	30
Figure 17	Screenshot of TinyKittens Webpage — The Happy Forest Colony	30
Figure 18	Screenshot of TinyKittens Webpage — Chloe's Biography	30
Figure 19	Screenshot of TinyKittens Webpage — Community Impact	30
Figure 20	Example of TinyKittens YouTube Synchronous Chat	32
Figure 21	Example of TinyKittens VIP Synchronous Chat	32
Figure 22	Rules for TinyKittens YouTube Chat	32
Figure 23	Facebook Pages for TinyKittens Graduate	33
Figure 24	TinyKittens Unite Facebook Page	34
Figure 25	TinyKittens Cat Pack Facebook Page	34
Figure 26	Example Post from TinyKittens Facebook Page	36
Figure 27	Example Response Summary from TinyKittens Facebook Page	36
Figure 28	Example Visitor Posts from TinyKittens Facebook Page	36
Figure 29	Example Post on TinyKittens Unite Facebook Page	36
Figure 30	Example Post on Personal News Feed from TinyKittens Unite Facebook Page	36
Figure 31	Diagram of Theoretical Framework	41
Figure 32	Screenshot of TinyKittens Follower Numbers on Facebook	90
Figure 33	Screenshot of TinyKittens Subscriber Numbers on YouTube	90
Figure 34	Screenshot of Video View Count on Facebook	90
Figure 35	Screenshot of Live Viewer Numbers on YouTube	90
Figure 36	Screenshot of TinyKittens Unite Facebook Page Rules	93
Figure 37	Email from Research Ethics Office About Social Media Data	95
Figure 38	Screenshot of Unexpanded TinyKittens Unite Comments	97
Figure 39	Screenshot of Expanded TinyKittens Unite Comments	97
Figure 40	Screenshot of FireShot Lite Browser Extension	98
Figure 41	Screenshot of FireShot Lite Download Options	98
Figure 42	Screenshot of Netvizz App on Facebook	99
Figure 43	Example Post One with Emojis from TinyKittens Facebook Page	102
Figure 44	Example Post Two with Emojis from TinyKittens Facebook Page	103
Figure 45	List of Codes and Usage Statistics	111
Figure 46	Screenshot of Facebook Data Files in NVivo	112
Figure 47	Screenshot of PDF File of TinyKittens Unite Facebook Post	113
Figure 48	Hierarchy of Node Folders in NVivo	114
Figure 49	Example Node Properties Window in NVivo	114
		123

Figure 50	Total Number of Posts, Comments, Shares, and Reactions on TinyKittens Facebook Pages	
Figure 51	Posts, Comments, Shares, and Reactions by Month and TinyKittens Facebook Page	124
Figure 52	Average Number of Comments, Shares, and Reactions by Month and TinyKittens Facebook Page	125
Figure 53	Percentage of TinyKittens Facebook Posts with Attachments	125
Figure 54	Number of Comments on TinyKittens Facebook Pages With and Without Text	126
Figure 55	Number of Comment Attachments on TinyKittens Facebook Pages by Month	127
Figure 56	List of Attribute, Process, Emotion, and Descriptive Codes with Usage Statistics	132
Figure 57	List of Values Codes with Usage Statistics	132
Figure 58	Process Code NVivo Search Query Results	139
Figure 59	Emotion Code NVivo Search Query Results	150
Figure 60	Folk Terms NVivo Search Query Results	242
Figure 61	Screenshot of YouTube Chat Comment with an Implicit Social Norm	250
Figure 62	Diagram of TinyKittens Information Worlds	256
Figure 63	Screenshot of Supportive YouTube Chat Comments	275
Figure 64	Screenshot of Supportive YouTube Chat Comments	275
Figure 65	Screenshot of Supportive YouTube Chat Comments	276
Figure 66	Screenshot of Supportive YouTube Chat Comments	276
Figure 67	Screenshot of Supportive YouTube Chat Comments	276
Figure 68	Screenshot of Personal YouTube Chat Comments	277
Figure 69	Screenshot of Personal YouTube Chat Comments	277
Figure 70	Screenshot of Personal YouTube Chat Comments	277
Figure 71	Screenshot of Personal YouTube Chat Comments	277
Figure 72	Screenshot of Personal YouTube Chat Comments	277
Figure 73	Screenshot of Helpful YouTube Chat Comments	278
Figure 74	Screenshot of Helpful YouTube Chat Comments	278
Figure 75	Screenshot of Helpful YouTube Chat Comments	279
Figure 76	Screenshot of Helpful YouTube Chat Comments	279
Figure 77	Screenshot of Happy YouTube Chat Comments	279
Figure 78	Screenshot of Happy YouTube Chat Comments	279
Figure 79	Screenshot of Happy YouTube Chat Comments	279
Figure 80	Screenshot of Happy YouTube Chat Comments	280
Figure 81	Screenshot of Happy YouTube Chat Comments	280
Figure 82	Screenshot of Caring YouTube Chat Comments	281
Figure 83	Screenshot of Caring YouTube Chat Comments	281
Figure 84	Screenshot of Caring YouTube Chat Comments	281
Figure 85	Screenshot of Caring YouTube Chat Comments	281
Figure 86	Screenshot of Caring YouTube Chat Comments	281
Figure 87	Screenshot of Negative YouTube Chat Comments	282
Figure 88	Screenshot of Negative YouTube Chat Comments	282

CHAPTER 1 INTRODUCTION

“No one can truly understand the bond we form with the cats we love until they experience the loss of one.” Unknown

1.1 Chapter Overview

As of 2018, there were an estimated 8.3 million *pet*¹ cats in households across Canada (CAHI, 2019). This means around 38% of Canadian households have at least one cat (CAHI, 2019), which is the equivalent of one cat for every four people in Canada. In the United States (US), there were an estimated 94.2 million pet cats as of a 2017/2018 survey (APPA, 2018), which is the equivalent of one cat for every three and a half people in the US.

Cat rescue organizations estimate that the *unowned* cat population is likely between six and 15% of the human population (Cats & Birds, 2019). According to Statistics Canada, the population of Canada (at exactly 12:41pm on Friday, May 3, 2019) is 37,486,549. This means there are between 2.2 and 5.6 million unowned cats in Canada. This further means that there are between 11 and 14.4 million cats (owned and unowned) in Canada in 2019. According to Humane Canada (2019), cats are the most popular and most numerous pet in Canada.

In 2012, a massive neural network of 16 thousand computer processors, created by Google’s secret X lab, was let loose on YouTube in an attempt to teach itself to recognize human faces (Markoff, 2012; Clark, 2012). This neural network looked at over 10 million digital images from YouTube and ended up finding...cats (Markoff, 2012; Clark, 2012)! So many cats, in fact, that the network developed its own idea of what a cat looked like, even though the computer scientists who programmed the network never taught it about cats (Markoff, 2012; Clark, 2012). While the purpose of the project was to teach the neural network how to recognize human faces, due to the incredibly large number of cats on YouTube, the network also learned to identify cat faces with 74.8% accuracy (Clark, 2012). Human and cat faces are the only types of faces learned by this neural network. Cats are popular in homes (and, unfortunately, on the streets), as well as on the internet.

1. For both the Canadian and US cat population figures, these numbers represent only pet or house cats, not stray and feral cats.

In 2014, on a Reddit Q&A, Tim Berners-Lee, the inventor of the world wide web, was asked, “What was one of the things you never thought the internet would be used for, but has actually become one of the main reasons people use the internet?” (*totharescue*, 2014). Tim’s answer, “Kittens” (Berners-Lee, 2014). Commenters on Reddit drew the conclusion that Tim must have expected pornography to become pervasive on the internet, but kittens took him by surprise!

A 2015 study conducted by Jessica Myrick looked at the effects of watching cat videos on the internet and concluded,

While the topic of online cat-related media consumption may seem, on the surface, a lighthearted one for serious academic inquiry, the global popularity of such media and the historical roots of feline-focused media should encourage Internet, media, and psychology researchers to take note. (p. 175)

Myrick (2015) found that watching cat videos increased positive emotions, such as hope, happiness, and contentment; increased energy levels; and decreased negative emotions. In other words, watching cat videos is good for you.

The internet, however, is good for more than just cat videos. The internet “has had a significant impact on the relationship between people and the information they use, precisely because of its ability to meld information access with meaningful and extensive social interaction” (Jaeger & Burnett, 2010, p. 88). A location on the internet where users cannot only exchange information, but also engage in social interactions, is referred to as a virtual community and/or an information world (Jaeger & Burnett, 2010).

The TinyKittens online community—the focus of my study—has all of the above. It has cats (and kittens), it has both live and recorded videos of cats and kittens, it has photos of cats and kittens, it facilitates information exchange, and it fosters social interactions. The TinyKittens online community consists of multiple Facebook pages and multiple live video streams (with synchronous chats). Members of this online community (or information world) can choose to actively participate by contributing information or they can choose to simply watch or read.

I believe the focus of the TinyKittens online community on cats and kittens is, in and of itself, significant. Humans have an innate need to interact and bond with other forms of life and nature (Wilson, 1984). This need or craving is referred to as biophilia, a

concept developed by E.O. Wilson in 1984. Pets—including cats and kittens—are one way in which humans attempt to satisfy this craving.

Not coincidentally, having a pet with whom you bond provides more than just satisfaction to a biophilic craving, it can impact both the human and non-human psychologically and physiologically (AVMA, 2019; The Center, 2019). These mental, emotional, and physical benefits are felt due to the production of oxytocin, a hormone naturally produced by mammals that induces feelings of comfort and closeness (Unväs Moberg, 2003; Freund, 2016). This human-animal bond can also provide other benefits to both the human and non-human, benefits not necessarily caused by oxytocin. For example, owning a dog that requires a daily walk will provide physical and mental benefits to both the human and the dog because of that walk. Both the human and the dog get the benefit of daily exercise, the opportunity to leave their homes, and the chance to possibly enjoy social interactions. If the walk includes a dog park, maybe the dog gets the opportunity to interact with other dogs and the human gets the opportunity to interact with other humans. A walk through the neighbourhood may allow the human to meet her neighbours, which in turn could lead to regular social interactions between them.

The human-animal bond, which is defined as the “dynamic relationship between people and animals in that each influences the psychological and physiological state of the other” (The Center, 2019), can be experienced through physical and visual interaction (Ulrich, 1993; Beck & Katcher, 1996; Friedmann, Thomas, & Eddy, 2000; Anderson, 2008; Olmert, 2009; Zilcha-Mano, Mikulincer, & Shaver, 2012; Bradshaw, 2013; Carter & Porges, 2016; Hart, 2018). The human and non-human do not have to be in physical proximity to benefit from the bond (Olmert, 2009; Bradshaw, 2013; Friedmann, Son, & Saleem, 2015). Humans can receive the benefits of the human-animal bond by watching or observing animals, such as fish in an aquarium (Beck & Katcher, 1996; Friedmann et al., 2000; Olmert, 2009; Friedmann et al., 2015). Depending upon the specific circumstances, the non-human animal may not receive the same benefits from a visual bond as they would from a physical bond, but I believe they still benefit. For example, if humans enjoy watching rescued cats and kittens on a live video stream on the internet, there is likely a greater chance those humans will provide financial assistance to that rescue. Or the humans may find themselves educated in the ways of feral cat population control which they, in turn, share with other humans who may

implement such programs locally. In the first example, the cats and kittens being watched benefit directly from that financial support, but they do not receive the same oxytocin-induced benefits as the human. And in the second example, cats and kittens benefit from the education humans have received, but again, not the same oxytocin-induced benefits.

If the TinyKittens online community was an information world that facilitated information exchange and fostered social interactions, but was not related to cats, it would likely still provide benefits to its members. But the added focus on cats and kittens *ups the ante*, so to speak, and provides those members with the extra benefits of the human-animal bond.

1.2 Research Gap

After an extensive literature search, I was only able to find one study that *purposely* sought to research the combination of cats, videos, the internet, and potential benefits to humans—Myrick’s 2015 study. Other internet studies have focused on cats (e.g., Foster, Kirman, Linkchan, Lawson, Mills, Ellis, & Zulch, 2011; O’Meara, 2015; Podhovnik, 2016; and Wu, Yuan, You, & Luo, 2016), but they did not specifically look at the benefits of watching cats on the internet. In the previous section, Myrick (2015) was quoted as saying that research on “cat-related media consumption” (p. 175) does not seem overly academic and could potentially be ignored. But the sheer fact of its popularity should be enough to drive researchers to consider it as a focus of study (Myrick, 2015). I agree.

This study focuses on the TinyKittens online community by looking at it as both a virtual community and an information world. Virtual communities have been studied extensively since Howard Rheingold first mentioned the term in a 1987 article. Looking at a virtual community as an information world is a more recent research approach, developed by Gary Burnett and Paul Jaeger in 2010.

This study will also explore the TinyKittens online community from the perspective of biophilia and the human-animal bond, both concepts which have been studied considerably by many researchers. The biophilia hypothesis was developed by E.O. Wilson in 1984 and has been studied regularly since. Concepts associated with the human-animal bond have been suggested as far back as 19th century by Florence Nightingale (Coren, 2015), but took some time to catch on as a subject of academic study. In the 1960s, child psychologist Boris Levinson included animals as a part of his

therapy programs, but was laughed at by his colleagues when he tried to study the connection between human and animals during therapy (Coren, 2015). More recently, organizations like the American Veterinary Medical Association (AVMA) have recognized the existence and importance of the human-animal bond. And academic institutions have identified the human-animal bond as an important research topic by their creation of organizations like The Center for the Human-Animal Bond at Purdue University.

Experiencing biophilia and the human-animal bond visually (rather than physically) is not a new idea. Alan Beck and Aaron Katcher conducted several studies on the benefits of watching an aquarium to reduce stress and induce relaxation. Other studies looked at the benefits of watching animals on mood and emotion (Friedmann et al., 2000; Olmert, 2009). However, none of these studies looked at the visual human-animal bond using the internet, only using in-person situations (e.g., aquariums), posters, or pictures.

I intend to fill a gap in the research around biophilia, the human-animal bond, virtual communities, and information worlds by combining these concepts and exploring the benefits they provide, as a group. I also intend to fill the gap in research associated with cat-related (social) media, as pointed out by Myrick.

1.3 Purpose

The purpose of this study is to analyze the specific posts and comments written by members of the TinyKittens online community in order to show what benefits these members receive. I use the concepts of biophilia, the human-animal bond, virtual communities, and information worlds to better analyze and understand these benefits and their impacts on community members.

1.4 Research Questions

This study addresses two research questions:

1. What information is exchanged (sought and shared) among members of the TinyKittens online community?

2. How does the information exchanged by TinyKittens online community members provide evidence for the community-based (virtual) human-animal bond?

1.5 Chapter Conclusion

This study will show how members of the TinyKittens online community benefit from that membership. The TinyKittens online community, as both a virtual community and an information world, provide members with the ability to exchange information that is useful, personal, supportive, and positive. The TinyKittens online community fosters a sense of altruism amongst its members and provides them with the opportunity to answer the questions of and provide advice to other members. Most importantly, the TinyKittens online community benefits all members, regardless of their level of participation within the online community.

TinyKittens online community members express a multitude of emotions through their posts and comments on Facebook, as well as their chat comments on YouTube. These emotions are the result of both the multi-media (i.e., live video streams) they see and the social interactions they experience on Facebook and YouTube. When these emotions are compared to the emotions experienced by humans in a human-animal bond, we see that TinyKittens online community members are, in fact, experiencing a community-based (virtual) human-animal bond.

I have drawn these conclusions from the coding and thematic analysis of data from five Facebook pages; four *official* Facebook pages owned and operated by the TinyKittens Society and one *unofficial* Facebook page owned and operated by members of the TinyKittens online community. I collected data from the four official Facebook pages using the Netvizz app, which was developed by an academic researcher. Data collected using Netvizz included all posts and comments between January and June 2018. I collected data from the unofficial Facebook page using a screenshot browser extension and then *translated* those images using OCR software to make the text in the images searchable. I then used NVivo for coding and thematic analysis, using a codebook I developed specifically for this study.

The thematic analysis found five major themes from the data. Those themes highlighted five characteristics of the members of the TinyKittens online community:

they are typically happy and supportive individuals; they regularly share personal information; they endeavour to help members in need; they find happiness and relaxation from the community and the live video streams; and they care deeply about the well-being of all cats and kittens, which has allowed them to develop a bond with the cats and kittens in the care of TinyKittens.

1.5.1 Thesis Outline

Chapter 2, the Background, provides the *who*, *what*, and *why* for this study, including an in-depth review of the limited research that has included both cats and the internet. Chapter 2 also provides a brief history of the cat, a detailed description of TinyKittens and its social media presence, and a description of my personal involvement with TinyKittens.

Chapter 3, the Literature Review, continues the explanation of the *why* with a comprehensive review of the literature associated with biophilia, the human-animal bond, virtual communities, and information worlds. Chapter 3 also provides a visual representation of the theoretical framework, to show where and how these theories are connected for the purpose of this study.

Chapter 4, the Methodology, moves onto the *how* of the study by outlining how the scope, sampling methods, ethics, data collection, and data analysis were determined and conducted for this study. Chapter 4 also includes an overview of the software used to collect Facebook data, as well as a synopsis of the codebook's development.

Chapter 5, the Results, reviews the direct findings of the study's coding and thematic analysis. Chapter 5 will also break down these findings from the *big picture* to the *bottom line* by taking a *deep dive* into those results. Finally, Chapter 5 ends with the top five themes identified by the analysis.

Chapter 6, the Discussion, takes the themes developed in Chapter 5 and uses them to answer the two research questions introduced in this chapter. Chapter 6 also uses data from YouTube to triangulate the themes and answers.

Chapter 7, the Conclusion, wraps everything up with an overview of the themes and research questions, as well as a review of the limitations and potential future research studies.

CHAPTER 2 BACKGROUND

“In ancient times cats were worshipped as gods; they have not forgotten this.” Terry Pratchett

2.1 Chapter Overview

The purpose of this chapter is to provide context for this study in terms of *who*, *what*, and *why*. *What* specific terms need to be defined for this study? *What* studies have already looked at cats on the internet and *what* have they found? *What* is a cat, *what* was the cause of the cat’s domestication, and *why* are they so popular? *Who* is TinyKittens and *why* are they being studied? *What* social media presence does TinyKittens have? *What* is my personal involvement in TinyKittens to date and *what* impact will it have on this study?

Section 2.2 starts the chapter with study-specific definitions of seven terms I use frequently in this study. Section 2.3 reviews the five previous studies I found that include both cats and the internet. This section shows that only one of these five studies purposefully set out to research the benefits of cats and the internet on humans. And, none of these studies included the concepts of either virtual communities or information worlds.

Section 2.4 provides a history of the crazy fur ball we know as the cat. It tells the story of how the cat created its god-like persona by first domesticating itself and then being associated with gods worshipped in Ancient Egypt. It also provides facts about cats that help explain why they are so popular—such as the fact that their meows are designed specifically for *their* humans and purposely sound like a baby crying (Loxton, 1998; Bradshaw et al., 2012; Bradshaw, 2013; Turner & Bateson, 2014; Tucker, 2016).

Section 2.5 provides an overview of the TinyKittens Society: who they are, what they do, and how they came to be. This section introduces the social media presence TinyKittens has on Facebook, Twitter, YouTube, and Instagram. It also provides a summary of events that occurred at TinyKittens during the study period, which included the birth of three litters of adorable kittens in April 2018.

Section 2.6 reviews the specific social media accounts administered by TinyKittens, as well as an account administered by TinyKittens community members. This section also explains the difference between an open page and a closed group on Facebook, which significantly impacted my data collection methods.

Finally, Section 2.7 provides a statement regarding my personal history with TinyKittens, including how I have supported them in the past and why I wanted to use them for this study. My personal experience with the TinyKittens online community has provided me with specific knowledge that has helped me analyze the posts and comments, as well as understand their unique vocabulary.

2.2 Definitions

The following definitions have been provided as they apply specifically to this study. They are listed in alphabetical order.

2.2.1 [The] Cat

The most important definition on the list! A cat is considered the following and Figures 1 and 2 represent cats in visual form:

[A] quite pleasant furry creature that vaguely resembles a meatloaf. Cats are the most intellectually superior creature on Earth. They are particularly adept at training human beings to do their bidding, and spend 18 hours a day...sleeping. What they are really doing is coming up with ways to take over the Earth while still retaining humans to make yummy cat food...If cats had opposable thumbs, they, not us, would be the dominant [life form] on this planet. (gadjitfreak, 2007)



Figure 1: Jasmine



Figure 2: Jasper

All three types of cats—house cats, stray cats, and feral cats—are included. For the purpose of this study, a house cat is one that is owned or cared for by a specific human or humans, lives in a domestic setting such as a house or apartment, and is

provided with food regularly (Alley Cat Allies, 2019). A stray cat is a cat that has been domesticated, but for whatever reason no longer lives with a human. In most cases, stray cats have been abandoned by their owners, meaning the cat must find its own shelter and hunt for its own food. Some stray cats may be friendly and may visit humans regularly for food and attention; others may be spayed or neutered. Finally, a feral cat is one that was born in the wild and has never experienced a domestic life (Bradshaw, 2013). Most feral cats are afraid of humans and tend to live away from human populations. Feral cats normally live in colony settings and are not spayed or neutered (unless a TNR program has been implemented).

Stray cats may wander into a feral cat colony and become part of the colony. Stray and feral cats may breed, which expands the size of the colony. Intact female cats can have kittens as early as four or five months of age, up to three times a year, and have around five or six kittens per litter (Alley Cat Allies, 2019). This means the average intact female cat can have around 18 kittens *per year*. Unfortunately, in the wild, only 25% of kittens survive to adulthood due to disease, starvation, predation, and interaction with humans (Palmer, 2014).

2.2.2 Emoticons versus Emojis

Emojis and emoticons have quite a long history. Emoticons were created in the 1980s and emojis were created around 1999. **Emoticons** are punctuation used to create a picture that represents a specific sentiment or emotion (Wikipedia, 5 May 2019). For example, :-) as a smiley face meaning happy or :- (as a smiley face meaning sad. Users must type the punctuation themselves, in a specific order, to create an emoticon. And emoticons can be used anywhere text can be used. Each punctuation mark used in an emoticon represents one character.

Emojis are ideograms or smiley faces (😊) that can be used in most types of electronic messages (e.g., emails, text messages, Facebook posts, YouTube chat, etc.) (Wikipedia, 26 Apr 2019 @ 01:25 UTC). An emoji is a tiny image that cannot be altered by the user. Emojis can include items like food (🍕), transportation (✈️), places (🏰), animals (🐶), and even weather (☁️). There is a standardized list of emojis that is approved and maintained by ASCII, but the exact image can differ between operating systems (e.g., Apple vs. Android vs. Windows, etc.). While emojis look like only one

image, some do count as more than one character due to the way in which they are programmed.

For this study, I found both emojis and emoticons in posts and comments. However, in some cases, the data downloaded from Facebook using the Netvizz app displayed an emoticon when an emoji was input. Because of this issue, I have combined emojis and emoticons into one category and refer to them as emojis.

2.2.3 Members versus Followers/Subscribers

Communities of any kind have members. For the purpose of this study, members of a community (or virtual community) are those that regularly *interact* in the community and are likely to refer to themselves as a member of that community. Members of the TinyKittens online community can include those who watch the live video stream, chat in YouTube or Livestream, or read/respond to Facebook posts. TinyKittens community members do not necessarily have to *participate* within the community to be considered members. For example, some community members prefer to watch, observe, and read what everyone else is doing rather than write posts themselves.

Facebook and YouTube keep track of Followers and Subscribers, respectively. These numbers represent the number of individuals who have clicked the Follow or Subscribe button for a specific Facebook or YouTube account. Followers and Subscribers could follow or subscribe to an account and then never view it again. It is therefore likely that the number of followers and subscribers associated with a TinyKittens social media account is much higher than the number of community members. This study focuses specifically on community members, not just those who have followed or subscribed to TinyKittens via social media.

2.2.4 Pet

The Apple Dictionary's (2018) definition of a pet is, "a domestic or tamed animal kept for companionship or pleasure" (n.p.). Wikipedia (26 Apr 2019 @ 16:17 UTC) defines a pet as, "an animal kept primarily for a person's company, protection, or entertainment rather than as a working animal, livestock, or laboratory animal" (n.p.). Both of these definitions are appropriate for defining a *pet* for the purpose of this study. Neither of these definitions touch on the legal or ethical aspects of pet

ownership. While I recognize that there is a long-standing debate about the legal and ethical aspects of pet ownership, I do not attempt to address that topic in this study.

2.2.5 Social Media

Social media, according to the *SAGE Handbook of Social Media Research Methods*, should have the following three characteristics:

1. The capability to support user-generated content in forms such as images, text, videos, and statuses...
2. Provide a means for users to connect with one another...
3. Support various means for members to engage with one another in the form of community building, participation, sharing, linking and other means. (Sloan & Quan-Haase, 2017, p.5)

For the purpose of this study, this definition of social media works perfectly.

Facebook, YouTube, and Livestream each have all three characteristics. Conversely, a website like TinyKittens.com does not have these characteristics. It is also important to note that social media, as defined above, does not equate to a specific platform, instead it is based on functionality. While specific social media platforms are used in this study, technically they are not the only systems which could be defined as social media.

2.2.6 Stickers versus Reactions on Facebook

Facebook users have the ability to react, share, and comment on (almost) any post they see/read. Only reactions and comments are available for posts found in a *closed* Facebook group, the Share function is not available. All three functions are available for posts found on a *public* Facebook page.

Facebook provides users with the option to select one of six reactions—Like, Love, HaHa, Wow, Sad, and Angry. Each reaction has an associated emoji which is displayed when the reaction is selected. Users are not able to change the emoji, nor are they able to create any additional reactions. A user can post both a reaction and a comment, but they are not displayed together on Facebook. Reactions are counted and summed for each post, whereas comments are listed individually below the post.

Users can, however, select and post a *sticker* on Facebook. Stickers are pre-determined images available specifically for Facebook. Users can select sticker albums they wish to have access to, and then they can select any of the images in that album to display in a comment. A sticker can include additional comment *text* and is not associated with any reactions selected by the user. Some stickers are used to represent a specific sentiment known only by a specific Facebook group or page (e.g., Power of the Paw). The same sticker might mean something completely different to another Facebook group or page. Users cannot create their own stickers in Facebook directly, but they could theoretically create a sticker outside Facebook and make it available in Facebook (if they have the appropriate technical know-how).

It is important to distinguish between reactions and stickers as both are used regularly by TinyKittens online community members. Users can use both a reaction and a sticker in their response to a single post or more than one sticker in their response to a single post, but they cannot use more than one reaction. Due to the standardized nature of reactions, they are easy to define and interpret. However, due to the non-standardized nature of stickers, they are not as easy to define or interpret and, in some cases, do require inside knowledge to translate.

2.2.7 Trap-Neuter-Return

Trap-Neuter-Return, also known as TNR, is a term used by cat rescue organizations to refer to a cat population control program. A TNR program usually includes trapping the cat, having the cat spayed or neutered, and then releasing the cat back into the feral colony from which it came (Wikipedia, 6 May 2019). These steps ensure that the specific cat cannot procreate and increase the population of that feral colony. For a TNR program to be successful, over 80% of the cats have to be TNRed (McCarthy, Levine, & Reed, 2013). In many cases, a colony that has been TNRed (or is in the process of being TNRed) is also fed daily. And, when cats have medical issues, they are normally re-trapped and taken to the vet.

TNR has a lot of controversy associated with it and there are those who argue it does not work in the long-term (McCarthy et al., 2013; McNamee, 2017; Tucker, 2016). Studies exist that show both its success and its failure (McCarthy et al., 2013; McNamee, 2017; Tucker, 2016). In fact, studies show that TNR is no more useful or expensive than euthanizing cats in a specific colony (Tucker, 2016). However, from a

public relations perspective, TNR comes across as more respectful and ethical, therefore, it often wins out over euthanasia (Tucker, 2016).

As a note, there is also controversy as to whether a feral cat found in one of these colonies can be socialized enough to be adopted into a loving home. Some cat rescue organizations claim that a kitten must be socialized before a certain age in order to be able to live domestically, and any feral kitten or cat older than several months cannot be socialized. TinyKittens has been able to socialize feral cats who are as old as seven-years and have been able to place them successfully into loving homes. In some cases, TinyKittens has released feral momma cats back to their colony, only to have the momma cat *ask* to be brought back in and adopted. One cat—Sable—was downright devilish when she was at TinyKittens to have her kittens. She was released back to the Happy Forest colony and then decided she preferred life on the inside. She was brought back to TinyKittens and adopted.

2.3 Cats & the Internet

Prior to the beginning of this study, I conducted an extensive literature search² focusing on the keyword “cat(s)” in various combinations with “internet,” “social media,” and “Facebook.” This search revealed only five articles with a combination of these terms. While the five articles included something cat-related and something internet-related, that was all they had in common. Researchers from these studies used a variety of social media platforms, such as YouTube (Myrick, 2015; O’Meara, 2014), Instagram (Wu et al., 2016), internet news feeds (Podhovnik, 2016), and even a study-specific application (Foster et al., 2011). Only the study by Podhovnik (2016) included Facebook.

These five studies were conducted for a variety of reasons, such as assessing the effect of cat videos on viewers (Myrick, 2015), investigating a convolutional neural network and facial recognition software (Wu et al., 2016), reviewing cat videos from the perspective of film study theories (O’Meara, 2014), analyzing the impact of cat-based news from the perspective of popular culture (Podhovnik, 2016), and using statistical analysis to review the emotions humans associate with cats (Foster et al., 2011). The conclusions of these studies also varied and included: watching cat videos can positively

2. This literature search included all relevant databases at the University of Alberta Library, as well as Google and Google Scholar. Plus, bibliography searches of journal articles and books I found on the same or related topics. I searched the previously-noted databases using each keyword mentioned individually, as well as every possible combination. The keywords were used to search the full text available, not just titles, abstracts, or subject terms. If I found a specific author with a relevant article or book, I also searched the databases using the author’s name.

affect your emotions (Myrick, 2015), pet owners are generally happier than non-pet owners (Wu et al., 2016), watching cat videos allows viewers to “imagine a world where we are not constantly aware of being watched” (O’Meara, 2014, n.p.), “cats have a positive image and are regarded as fellow creatures, companions, symbols, metaphors, allegories, heroes, guardians, healers, and muses” (Podhovník, 2016, p. 137), and that people anthropomorphize human feelings onto cats which can have detrimental effects on a cat’s well-being (Foster et al., 2011).

Three of the five articles included aspects of human well-being. And, in general, the findings of these three studies showed a positive impact for humans (i.e., O’Meara, 2014; Myrick, 2015; Wu et al., 2016). Only Myrick’s 2015 study started with the intention of looking at human well-being as it related to cats on the internet. The other two studies included conclusions related to human well-being, but human well-being was not the intent of those studies (i.e., O’Meara, 2014; Wu et al., 2016).

It is only over time, and with more studies like these, that we will gain a better understanding of how the internet—with and without cats—can be used to positively impact humans and their well-being. While it may seem obvious that cat videos will make people laugh, relax, and feel better, the important question is why. Why do humans feel better after watching cat videos? (A portion of which is addressed in Myrick’s study.) What is the theoretical basis for this outcome that can be purposely duplicated for the betterment of human health? Can this also benefit the cats involved or cats in general? Can the same outcomes come from videos of other animals (domestic or otherwise)?

While these five studies included both cats and the internet, that is where their similarities to my study end. None of these studies included a discussion of information behaviour or virtual communities. While three studies used social media platforms (e.g., Wu et al., 2016; O’Meara, 2014; and Podhovník, 2016), none looked at the posts, comments, or chats associated with those platforms (only the photos and videos). In addition, all five studies used data collection methods that required the participants to be aware of the study’s existence.

There is one interesting aspect of these five studies that should be mentioned. Based on the dates of publication, each study cited all previously published studies. And, none of these studies cited any other cat + internet-related studies, further confirming that such a research gap exists.

2.4 Cats

No study about cats would be complete without a brief history of cats. Unlike dogs, cats domesticated themselves (Bradshaw, Casey, & Brown, 2012; Bradshaw, 2013; Tucker, 2016). When the stereotype about cats and their personalities is considered, this fact does not seem surprising. But it is only one of the many reasons why humans are so fascinated with cats.

2.4.1 The Evolution of the Domestic Cat

As would be expected, domestic cats (or modern-day cats) evolved from wildcats. In fact, all current members of the cat family (including lions and tigers) evolved from a medium-sized cat-like mammal called *Pseudaelurus*, which could be found in central Asia 11 million years ago (Bradshaw et al., 2012; Bradshaw, 2013; Turner & Bateson, 2014). The *Pseudaelurus* (which is now extinct) moved from central Asia to Africa via the Red Sea, where it evolved into the caracal and the serval (Bradshaw, 2013). It also moved into North America via the Bering land bridge, where it became the bobcat, lynx, and mountain lion (Bradshaw, 2013). From North America, it crossed into South America via the Panama isthmus, where it evolved into the ocelot and the Geoffroy's cat (Bradshaw, 2013). While the *Pseudaelurus* did move into Africa, cats like lions, tigers, jaguars, and leopards evolved in Asia and then moved elsewhere in the world (Bradshaw, 2013).

Scientists believe that the direct ancestor of the domestic cat evolved eight million years ago in North America and moved back into Asia six million years ago (Bradshaw, 2013). Then, three million years ago, the domestic cat ancestor began to evolve into the wildcat, the sand cat, and the jungle cat (Bradshaw, 2013). Based on DNA testing, scientists determined that *all domestic cats in existence today* evolved from one Arabian wildcat, the *Felis silvestris lybica* (Bradshaw et al., 2012; Bradshaw, 2013; Turner & Bateson, 2014; McNamee, 2017; Tucker, 2016). What is even more interesting is that *all domestic cats today* can be traced, via DNA, to *only five* female wildcats located in either the Middle East or North Africa (Bradshaw, 2013).

Unlike dogs, who were purposefully domesticated, cats moved closer to human settlements when humans started farming and storing grain in large quantities, about 10 thousand years ago (Bradshaw, 2013; Tucker, 2016). That grain, all in one place,

attracted rodents, which were a great source of food for cats (Bradshaw, 2013; Tucker, 2016). Rather than having to hunt in multiple locations for food, cats could stay in one place and capture all the food they could eat. In turn, humans benefitted by not having their grain eaten by rodents (Bradshaw, 2013; Tucker, 2016). From the very start, the human relationship with cats was a cooperative and beneficial one.

Living in and around human settlements alone was not enough to domesticate the cat. About thirty-five hundred to four thousand years ago, Ancient Egyptians started to keep cats as pets, in addition to using them as pest controllers (Loxton, 1998; Bradshaw et al., 2012; Bradshaw, 2013). In Ancient Egypt, artisans helped create the tombs and temples popular at the time. In order to practice their art, some of those artisans created drawings for fun or practice, many of which included cats (Bradshaw, 2013; Turner & Bateson, 2014). Interestingly, many of the drawings with cats had them in a cartoon-like setting (Loxton, 1998; Bradshaw, 2013; McNamee, 2017), indicating that humans created cat memes long before the internet was even a glimmer in someone's eye. Egyptians not only kept cats as pets and pest controllers, they used cats to represent some of the gods they worshipped. Research shows that cats became part of Egyptian cults and religion about thirty-five hundred years ago (Bradshaw et al., 2012; Bradshaw, 2013; Turner & Bateson, 2014). About two thousand years ago, the Egyptians started to associate smaller cats with the goddess Bastet, who eventually took the form of a domestic cat (Loxton, 1998; Bradshaw, 2013; Turner & Bateson, 2014). Bastet was originally known as the goddess who "protected humankind against misfortune" but eventually "became associated with playfulness, fertility, motherhood, and female sexuality" (Bradshaw, 2013, p. 35), characteristics that could also be used to describe cats.

Egyptians treated their cats like family. When a cat died from natural causes, all human members of the family shaved their eyebrows as a sign of respect (Loxton, 1998; Bradshaw, 2013). If a cat was killed by a human (even accidentally), that human could be beaten to death (Loxton, 1998; Bradshaw, 2013). Egyptians also needed to keep the cat population in check, as neutering was not yet invented. To do this, they would kill newborn kittens before their eyes opened (Bradshaw, 2013), which for some reason was not punishable by death. About twenty-four hundred to two thousand years ago, Egyptians started using cats in religious sacrifices (Bradshaw, 2013). Initially, Egyptians only mummified and buried cats that were pets of wealthy

individuals, but eventually turned the mummification of cats into a major industry (Loxton, 1998; Bradshaw, 2013; McNamee, 2017). Catteries were created to breed cats used only for the purpose of being sacrificed (Bradshaw, 2013). These catteries were built beside temples that worshiped gods associated with cats, like Bastet (Bradshaw, 2013). During this time, these mummified cat vendors³ placed millions of cat mummies in various tombs and temples dedicated to these gods, where they stayed for thousands of years until being discovered by modern archeologists (Bradshaw, 2013; McNamee, 2017). Unfortunately, it appears those in the archeological community at the time of discovery did not consider cat mummies to be worth keeping, so they were ground up and used as fertilizer (Bradshaw, 2013).

One shipment of cat mummies alone, sent to London, weighed nineteen tons, out of which just one cat was removed and presented to the British Museum before the remainder were ground into powder. Out of the millions [of cats] that were mummified, only a few hundred now survive in museums. (Bradshaw, 2013, p. 39)

Some archeological evidence shows that wildcats may have become domesticated as early as eight thousand to thirteen thousand years BCE, well before the Egyptians (Bradshaw, 2013; Turner & Bateson, 2014). On the island of Cyprus, for example, cat remains were found within human settlements dated around seventy-five hundred BCE (Bradshaw, 2013; Turner & Bateson, 2014; McNamee, 2017; Tucker, 2016). What is interesting about the cats found on the island of Cyprus is that they could only get there with the help of humans, as wildcats are not native to Cyprus (Bradshaw, 2013; Turner & Bateson, 2014; McNamee, 2017). While cats have been known to stowaway on ships (which is one way in which they reached Australia and other islands), the boats in seven thousand BCE were too small for feline stowaways to go unnoticed, therefore humans must have brought them on purpose (Bradshaw, 2013; Turner & Bateson, 2014). From this, researchers concluded that the cats brought to Cyprus were already somewhat tame, and since it is quite unlikely that this was a new practice, it is estimated that taming cats was probably a known practice in the Eastern Mediterranean before this time (Bradshaw, 2013; Turner & Bateson, 2014).

3. Researchers have determined that pretty much every cat mummy contained a cat skeleton. Meaning that the priests never thought to simply sell worshippers a cat sarcophagus without actually putting a mummified cat inside!

Cats became popular pets in Greece and Italy about twenty-four hundred years ago (Bradshaw, 2013). Unfortunately, cats also became associated with the Greek god Artemis and the Roman goddess Diana, which caused them to be associated with paganism as Christianity spread throughout Europe in the Middle Ages (Bradshaw, 2013; Turner & Bateson, 2014). Cats somehow became part of various odd sacrificial traditions, such as: Celts would bury cats, usually in a newly sown field, to bring good luck and a good crop; some European cities included the tradition of putting several cats in a basket and putting it over a fire, apparently the cats' screams scared away evil spirits; towns like Ypres have a Festival of the Cats where they threw cats from the top of a tower (Bradshaw, 2013).

In 1233, the Roman Catholic Church started its war against cats in Europe. The Pope published instructions that cats, specifically black cats, were associated with Satan and should be killed (Loxton, 1998; Bradshaw, 2013). "Over the next 300 years, millions of cats were tortured and killed, along with hundreds of thousands of their mainly female owners, who were suspected of witchcraft" (Bradshaw, 2013, p. 55). While the Catholic Church and Europeans generally demonized cats, they remained popular in the Islamic religion and were treated with kindness which allowed cats to prosper in the Middle East (Loxton, 1998; Bradshaw, 2013; Tucker, 2016). In 1280, the sultans who ruled Egypt and Syria created the very first cat sanctuary for homeless cats (Bradshaw, 2013). When the plague broke out, humans assumed it was cats who carried the disease (it was mainly rats), causing humans to hundreds of thousands of cats in the hopes of stopping its spread (it did not work) (Bradshaw, 2013; McNamee, 2017).

Thankfully, cat popularity made a comeback in the 18th century (Bradshaw, 2013). In France, King Louis XV allowed Queen Maria to have pet cats, which she spoiled rotten (Bradshaw, 2013). In England, cats were loved by poets, who wrote about them regularly. And by the 19th century, "the cat completed its transformation to domestic status" (Bradshaw, 2013, p. 60).

2.4.2 Cat Facts

For those who may not be familiar with cats, or even for cat lovers (like me) who love reading about cats, the following is a list of interesting cat facts:

- Thirty thousand-year-old cave paintings in Southern France show leopards and lions, drawn in great detail, indicating humans had an eye for cats (and animals in general) long before they became domesticated. (Tucker, 2016)
- Forensic analysis of cat mummies shows that they were all striped mackerel tabbies. None were black, none were tabbies with white patches, and none had the classic coat found on some tabbies today. In fact, it is likely that the blotchy classic tabby coat did not evolve until the Middle Ages. (Bradshaw, 2013; Tucker, 2016)
- The introduction of the orange or ginger cat likely came from Egypt. (Bradshaw, 2013)
- Cats are obligate carnivores, meaning they must eat meat. All cats, wild or otherwise, require the same type of nutrition to survive. Cats, unlike dogs or bears, cannot survive on plants, which is why they are also known as hyper-carnivores. Cats require protein for energy (unlike dogs and humans who get their energy from carbohydrates). Cats do not naturally produce the amino acid taurine, which is required to digest meat. Cats require vitamin A from their food; they cannot get it from any other source. They also need vitamin D from their food, as their skin does not make it as with humans. Cats cannot taste sweetness from sugar, but they can taste the sweetness of flesh! Cats have extremely efficient kidneys, likely from their days of living in or near deserts, which means they get most of their water from meat. Also, cats do not need vitamin C, which is why they were so successful on ships where humans suffered from scurvy. (Bradshaw et al., 2012; Bradshaw, 2013; Tucker, 2016)
- Kittens are born blind and mostly deaf. They move around their environment and find their mother based only on smell. They open their eyes and ears around two weeks of age. (Bradshaw et al., 2012; Bradshaw, 2013; Turner & Bateson, 2014)
- Kittens do not have the ability to produce stress hormones, which is why so many things can happen to a kitten (e.g., being sat on or dragged around by mom, falling out of their nests, etc.) and they do not freak out. (Bradshaw, 2013)

- Momma cats start to wean kittens around five weeks of age and most kittens are completely weaned by eight weeks of age. (Loxton, 1998; Bradshaw, 2013; Turner & Bateson, 2014)
- Cat pupils are able to expand up to three times greater than human pupils. Cat eyes also have a layer known as the tapetum, which is what makes a cat's eyes glow in the dark. Cats see better in the dark than in daylight. Cats can only see blue and yellow, which means they have red-green colour blindness. Cats cannot focus their eyes on objects closer than one foot. (Bradshaw et al., 2012; Bradshaw, 2013; Turner & Bateson, 2014; McNamee, 2017)
- Cats can hear into the ultrasonic range, about two octaves higher than human hearing. But cats hear the same range of frequencies as humans. Cats also have ears that swivel, independently, allowing them to turn their ears towards the source of a sound. Cats are also excellent at completely ignoring the voices of their humans! (Bradshaw et al., 2012; Bradshaw, 2013; Turner & Bateson, 2014; McNamee, 2017)
- One specific gene in a cat's DNA determines if they like or dislike catnip. The same gene can be found in every type of cat in modern day existence, including lions and tigers. (Bradshaw et al., 2012; Bradshaw, 2013)
- Cats have two olfactory organs. One olfactory organ is called the vomeronasal organ (VNO) or the Jacobson's organ. In order to use this organ, odours have to be dissolved in their saliva. When they are smelling something using their VNO, cats have to open their mouths to allow air to flow over the VNO, which is called the Flehmen response. This type of response is usually only done in social situations, when a cat is smelling the scent of another cat or of a human. (Bradshaw et al., 2012; Bradshaw, 2013; Turner & Bateson, 2014)
- Cats have the required mental machinery needed to experience emotions, just like humans. However, it is likely that cats feel emotions like dogs, in-the-moment rather than long-term. Cats likely feel emotions more deeply than most non-cat people think, but not quite as deep as cat lovers would like to think. (Bradshaw, 2013)
- Unlike dogs, cats do not find human attention enough of a reward for training purposes. Instead, a cat must be bribed with food. (Bradshaw, 2013)

- Cats have learned to meow to attract the attention of humans. Cats do not meow to each other (with the exception of a momma cat to kittens). When a cat wants something, they meow, sometimes using their own meow dialect created specifically for *their* human. A cat's meow sounds like a human baby's cry, which causes human instincts to perk up. (Loxton, 1998; Bradshaw et al., 2012; Bradshaw, 2013; Turner & Bateson, 2014; Tucker, 2016)
- Female cats have the ability to produce multiple kittens in one litter. But each kitten could, theoretically, have a different father. This is one of the reason why the coats of the kittens in one litter might be quite different. (Bradshaw, 2013)
- Cats and kittens are built to attract the attention and affection of humans. Their large, forward-facing eyes, large foreheads, and round heads are all designed to remind humans of their own infants, which they have an innate need to protect and care for. (Bradshaw, 2013; Tucker, 2016)

2.4.3 Will cats one day take over the world?

Yes. In fact, it could be argued that their takeover has already begun.

2.5 TinyKittens Society

The TinyKittens Society is a non-profit organization based in Fort Langley, British Columbia, Canada. They are different from some other cat rescue organizations in that they host multiple 24/7 live video streams of their cats and kittens on the internet. They are not the first cat rescue to do this, and they likely will not be the last, but for some reason they have managed to attract a huge audience. As of spring 2019, the numbers in Tables 1 and 2 represent the followers and subscribers they have on their various social media accounts.

Table 1

Number of Followers and Subscribers on TinyKittens' Social Media Accounts

Facebook Followers	Twitter Followers	YouTube Subscribers	Instagram Followers
1.6 million	33 thousand	118 thousand, plus 54 million views	45 thousand

Table 2

Number of Followers on TinyKittens' Additional Facebook Pages

Account	Followers
TinyTuxies	27 thousand
TinyTapeworms	9 thousand
Grandpa Mason	104 thousand
Auracuda	14 thousand
Total Followers	154 thousand

TinyKittens was founded in 2013 by Shelly Roche (Roche, "How..."). Shelly started fostering pregnant cats on behalf of the Langley Animal Protection Society (LAPS) and setup a live webcam for the public to watch her foster cats and kittens. In 2015, TinyKittens became a registered non-profit society in British Columbia⁴ (Roche, "How..."). Since 2013, TinyKittens has taken on additional tasks, such as: taking in feral cats who are injured or sick and in need of medical care; caring for feral cats who are being TNRed in their feral cat recovery ward until they are ready to be returned to their colonies; taking care of multiple feral cat colonies through TNR and daily feedings; and fostering all sorts of cats and kittens in need of adoption (Roche, "How...").

TinyKittens initially broadcast via the Livestream platform, before Facebook Live and YouTube Live existed. Livestream, at the time, was vastly unprepared for the amount of traffic on their platform. Not only did TinyKittens have regular technical difficulties, Livestream threatened to shut them down unless they paid tens of thousands of dollars to use the service. It was at this point that TinyKittens (and other non-profit organizations) moved to the free YouTube platform which had just launched

4. TinyKittens is not considered a charity, therefore they cannot issue tax receipts for donations.

a live broadcast function. Only one live video stream remains on the Livestream platform, the VIP stream.

In addition to taking on TNR and rescue projects of their own, TinyKittens partners with other rescue organizations (including LAPS) to take on larger projects that are too big for any one organization. For example, in 2017, TinyKittens worked with an animal rescue in southern BC that rescued cats and kittens from wildfires. TinyKittens took in at least a dozen cats and kittens from the fire, got them medical attention, socialized them (when needed), and got them adopted into loving homes.

TinyKittens believes that all aspects of cat and kitten rescue should be seen by the general public, as the reality of rescue is not always pretty. TinyKittens broadcasts intakes of new cats and kittens by showing how dirty and flea-ridden they are. They broadcast the special baths some kittens require who may have ringworm. And they broadcast the actual births of kittens, not all of whom survive. While TinyKittens has likely shown more happy endings than sad endings, they do not hide the sad endings from their audience. It is sometimes the unhappy endings that spur people into action and make them realize how important it is to spay and neuter pets in order to prevent unnecessary suffering.

Volunteers with TinyKittens visit all the cats and kittens (including the feral colonies) on a daily basis. The volunteers who visit the cats and kittens on the live video streams often appear on camera and have become well-known by viewers. However, Shelly is by far the most frequently seen human on the live video streams.

2.5.1 The Main Characters on the TinyKittens Live Video Stream

Shelly has three cats of her own who interact regularly with the cats and kittens under TinyKittens' care. Shelly's three cats—Bunny, Bartlett, and Pantsaroo—are nicknamed *The Teens*, see Figure 3. *The Teens* are all tuxies from the same litter that Shelly fostered years ago.

In addition to *The Teens*, Shelly also has *Cassidy the Miracle Kitten*, see Figure 4. Cassidy was brought into TinyKittens in 2015 with his brother Topper when he was nine-weeks-old. He was severely undernourished and missing his back feet. Shelly and the vets believe Cassidy's mother chewed off his feet accidentally just after he was born, as she was trying to eat the placenta. (A perfect example of the less than pretty picture of cat rescue.) Cassidy needed a lot of care in the first year of his life

and, as such, Shelly decided to keep him. Cassidy is a tuxie just like *The Teens*. Together, *The Teens* and *Cassidy the Miracle Kitten* make up the TinyTuxies and have a Facebook page of the same name. All the TinyTuxies appear regularly on the live video streams and in photos and videos posted by Shelly.

In 2016, TinyKittens brought in a feral cat from the Happy Forest colony who needed foot surgery, his name was Mason. During a medical check, it was found that Mason also had kidney failure, which would require regular medication. Because of his medical issues, Mason was not able to go back to his colony. Shelly decided to keep Mason, assuming he only had a few months to live. As of 2019, Mason is still going strong! Mason also has his own Facebook page and is a regular on the live video streams. Mason can often be found with groups of kittens with whom he takes on the role of Grandpaw. His interactions with kittens have become so famous that he is regularly featured on cat-related Facebook pages and websites (e.g., Love Meow).



Figure 3 [left]: [From left to right] Bartlett, Bunny, Grandpa Mason, and Pantsaroo.
Figure 4 [right]: Cassidy the Miracle Kitten, as a kitten.

2.5.2 Guest Stars on the TinyKittens Live Video Stream

Cats are constantly coming and going from TinyKittens. Cats come in from a variety of places, including the various feral colonies that TinyKittens cares for, from other rescue agencies that need help, and from one-off situations (e.g., hoarding, dumped cats, etc.). TinyKittens does not expect that all cats who come into their care will be adopted. Some cats taken in by TinyKittens are too feral to be socialized and, once they have recovered from medical issues, are returned to the feral colony from where they came. In situations where cats cannot be returned to a feral colony (e.g., when the colony needs to be relocated due to construction), the unsocialized cats are placed on farms. Kittens, because they are easier to socialize, are always adopted once they are old enough.

The main time period for this study was January to June 2018, although some data and examples were collected from the later months of 2018 as well. The main events during this time period were the birth of three litters of kittens to three different feral momma cats. Before and after these events, many other cats and kittens came and went from TinyKittens in 2018.

In January 2018, TinyKittens said goodbye to the Muppet kittens with TinySuitcases (see Figure 5) and looked for possible adopters for Elliott, Pele, and Birch (cats rescued from the BC wildfires—see Figure 6). In February 2018, TinyKittens looked for homes for former ferals Saratoga, Sable, and Pansy; said goodbye to Elliott, Pele, and Birch with TinySuitcases; and took care of feral cat Quarren. In March 2018, TinyKittens welcomed former-feral Riska (who had alopecia due to allergies); said goodbye to Saratoga (who was adopted); and welcomed Chloe into the nursery.



Figure 5 [left]: Packing TinySuitcases for the Muppet kittens.
Figure 6 [right]: [From left to right] Pele, Birch, and Elliott.

April 2018 was a big month at TinyKittens, when they welcomed Ramona and Rula to the nursery to join Chloe; looked for homes for Riska, Sable and Pansy; brought feral cat Rollins in for dental surgery; celebrated the birth of five kittens to Ramona (April 17th—Beezus, Ribsy, Quimby, Huggins, and Little Prince); celebrated the birth of three kittens to Rula (April 20th—Nakia, Okoye, and T'Challa—see Figure 7); celebrated the birth of five kittens to Chloe (April 22nd—Aura, Cheddar, Colby, Fontina, and Brie—see Figure 8); and grieved the loss of four newborn kittens (Little Prince, Quimby, Okoye, and T'Challa). They also discovered that Aura, one of Chloe's kittens, had a massive cleft palate (see Figure 9) which prevented her from nursing and required her to be tube fed four or five times a day. They also moved Nakia (Rula's only surviving kitten) in with the other eight kittens as Rula was seriously ill and needed medication (which she could not have if nursing).



Figure 7 [left]: Rula's three kittens shortly after they were born. Only Nakia (on top) survived.
 Figure 8 [right]: Chloe (ginger) and Ramona cuddling with their kittens after Chloe gave birth.



Figure 9: Aura's cleft palate at 6-hours-old and then again at 9-days-old.

In May 2018, TinyKittens continued to watch the surviving nine kittens grow (see Figure 11); helped Chloe with mastitis; brought three male feral cats (Cub [see Figure 10], Hannity, and Tom) in for neuters; said goodbye to Riska and Hannity (who were adopted together); struggled through a flooding evacuation alert in Langley, BC; grieved the unexpected passing of Pansy; and said goodbye to Rollins (who went back to his feral colony). They also continued to take care of Saratoga, who was returned from her adopter.

In June 2018, TinyKittens had a bit of a crisis on June 5 when Aura bit her feeding tube and swallowed it. She required endoscopic surgery on June 8 (see Figure 13). They also helped three other rescue organizations trap 30+ cats from an empty property (the Harvie colony) and welcomed 17 of those cats into their care, including three orphaned kittens (the Kinks—Authur, Ray, and Ivory—see Figure 12) who

needed round-the-clock bottle feeding. They also welcomed pregnant momma, Princess Consuela (found in the backseat of an abandoned BMW), to the nursery.

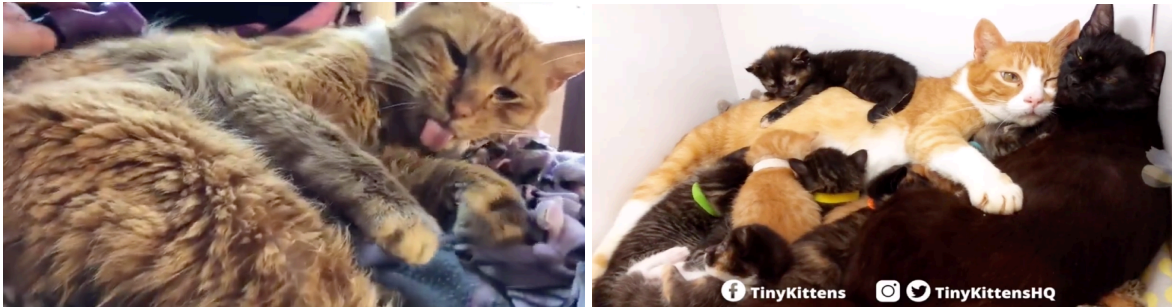


Figure 10 [left]: Formerly feral cat Cub after dental surgery to remove 17 teeth⁵.
Figure 11 [right]: Chloe (ginger) and Ramona (black) with all nine kittens.



Figure 12 [left]: [From left to right] Avory, Arthur, and Ray—the Kinks kittens.
Figure 13 [right]: Aura during surgery to remove the feeding tube she swallowed.

Over the remaining months of 2018, TinyKittens returned Rula and Ramona to the Happy Forest colony; found loving homes for Chloe and the nine kittens; found a loving home for the Kinks kittens; and found loving homes for Princess Consuela and her two kittens (Allie and Bentley, born via c-section). The other adult cats in their care in the first part of 2018 were either adopted or brought back to their feral colonies. And Aura, also known as *Auracuda* or *Auradorable*, stayed at TinyKittens waiting to be old enough for surgery. On October 17, Shelly announced that Aura had surprise surgery where the surgeons covered her cleft palate with a donated piece of bone from a dog (see Figure 14). As of that day, Aura was able to eat wet food and drink from a water bowl⁶, which allowed her to gain quite a bit of weight in a short period of time.

5. As a note, cats are anesthetized for dental procedures. Unfortunately, not a luxury used for humans!

6. Prior to her surgery, Aura could only eat dry kibble that was too big to fit through the hole in her palate. And she was only able to drink water from a rabbit water bottle, which required her to hold her head up while drinking to ensure the water did not go into her lungs. Due to the limited way she could eat, Aura was quite small for her age before surgery.



Figure 14: Before and after pictures of Aura's cleft palate surgery on October 17, 2018.

2.6 TinyKittens Social Media

2.6.1 The TinyKittens Website

The TinyKittens' website is tinykittens.com. Unlike TinyKittens' social media accounts, however, the website does not offer a means for community members to communicate with each other. The website includes educational information and information about the specific cats and kittens. It also has a method by which community members can donate money via PayPal and/or sign-up for and access the VIP live video stream.

One interesting link that is provided on the TinyKittens' website is to *TinyKittens in the Classroom*. While the website has not been updated recently, it does provide TinyKittens curriculum ideas for use in an elementary school classroom. Information found on the *TinyKittens in the Classroom* website was developed by Lynda Tyler, an elementary school teacher in BC, with the help and support of the TinyKittens Society.

The *Cats and kittens currently in our care* section of the website (see Figure 15) provides a list of all the cats currently at TinyKittens or in foster care. The cats and kittens on this page include those that are available for adoption. A link to submit an adoption application is also provided on this page.

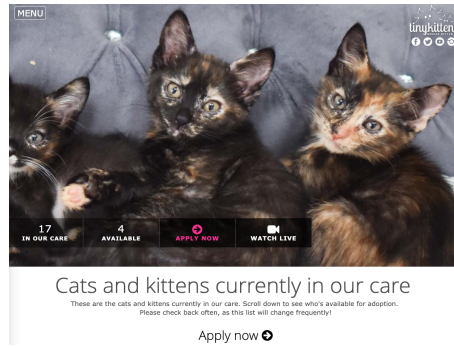


Figure 15: TinyKittens webpage that lists all the cats and kittens currently in their care and those that are available for adoption.

The *Meet our feral colonies* section of the website (see Figure 16) provides a list of all the feral colonies TinyKittens takes care of (but not their exact locations), as well as photos and bios of each cat and kitten found at each of those colonies (see Figure 17). The bios include information on whether that cat or kitten is still at the colony or if they have been successfully adopted (see Figure 18). It also lists what medical care each cat and kitten has received.

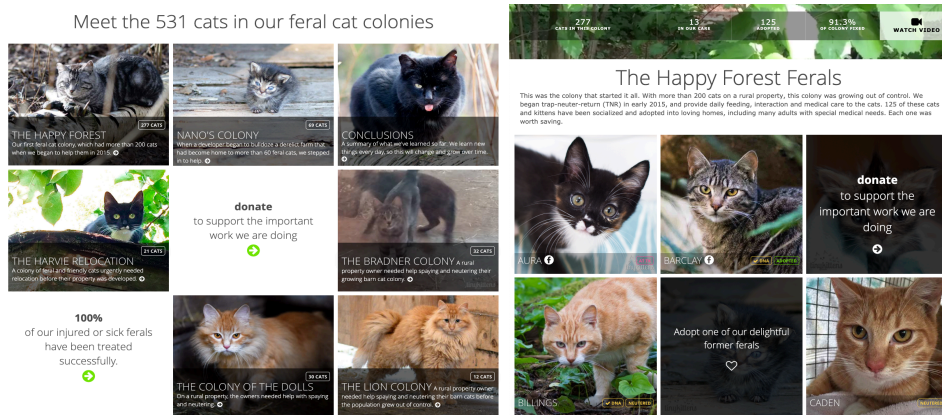


Figure 16 [left]: TinyKittens webpage listing all feral colonies and each cat and kitten at those colonies. Figure 17 [right]: The Happy Forest Colony webpage.

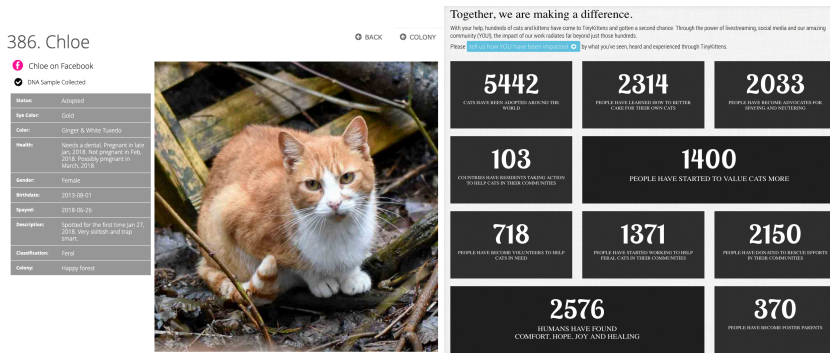


Figure 18 [left]: TinyKittens webpage with biographical information for Chloe. Figure 19 [right]: TinyKittens webpage displaying the impact they have had on the community.

One more section worth mentioning is a page outlining what specific impacts TinyKittens has had on community members (see Figure 19). Shelly has collected these figures via an online survey. Many of the figures on this page identify the value TinyKittens has had on the lives of those who watch and participate regularly. For example, 2,576 people have indicated that watching TinyKittens has brought them comfort, hope, joy, and healing (Roche, “Together...”).

2.6.2 TinyKittens Social Media Accounts

TinyKittens has one YouTube channel, one Livestream channel (for the VIP live video stream), five public Facebook pages, one Twitter account, and one Instagram account. For the purpose of this study, both the Twitter and Instagram accounts are considered out-of-scope. Almost everything posted on Twitter and Instagram is also posted on Facebook, at some point.

In early 2019, TinyKittens had two live video streams on YouTube: one called *Feral Catermelons about to give birth!* and the other called *Stanley the Tiny Kitten*. During the study period, they also had two live video streams on YouTube: one for the nursery with the pregnant momma cats (and eventually their kittens) and the other in a room with random feral cats either waiting for medical treatment or waiting to be sent back to a colony. It is unusual for TinyKittens to have more than two YouTube live video streams at the same time. But they do have a VIP live video stream on Livestream that is only available to paid subscribers (\$14 USD a month or \$125 USD a year). The view on the VIP live video stream is sometimes the same view as one of the two YouTube streams or sometimes a unique view available to subscribers only. Both YouTube and the VIP streams have associated chats (see Figures 20 and 21) where viewers (who are registered with the platform, not TinyKittens) can comment and communicate with other viewers synchronously. The YouTube chats have moderators: selected individuals who enforce the written rules of the channel (see Figure 22) and delete comments and/or block users who do not follow the rules. The VIP live video stream chat does not have moderators, as the number of viewers is usually quite small.

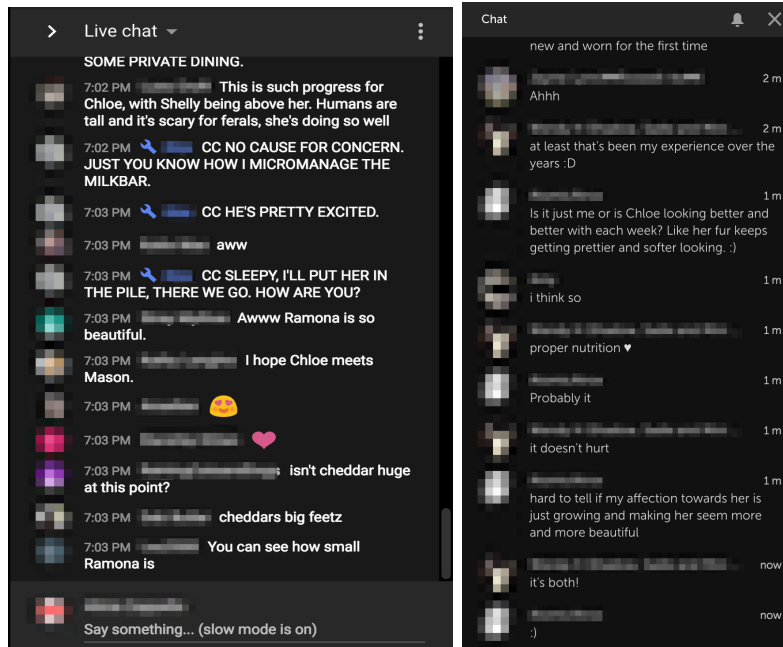


Figure 20 [left]: Example of the synchronous chat on the YouTube live video streams. The users whose names are in blue and have a wrench-like icon beside them are moderators.

Figure 21 [right]: Example of the synchronous chat on the VIP live video stream.

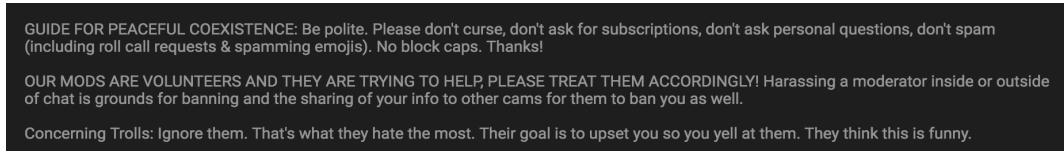


Figure 22: TinyKittens YouTube chat rules.

TinyKittens has five public Facebook pages. These five pages are considered *official* because they are owned and operated by TinyKittens itself. Those pages are,

- *TinyKittens*—the main Facebook page for the organization,
- *TinyTuxies*—a page for Shelly’s four tuxedo cats Cassidy, Pantsaroo, Bartlett, and Bunny,
- *TinyTapeworms*—a page for gross images and discussions related to medical care,
- *Grandpa Mason and his kittens*—a page dedicated to a former-feral cat named Mason who acts as a grandfather for all kittens at TinyKittens, and
- *Auracuda*—a page dedicated to Aura, a kitten born in April 2018 with a cleft palate who required special care and surgery.

Because the last page, *Auracuda*, was created after the start of the study period and for one of the kittens born during the study period, it is not considered in-scope for this study.

2.6.3 Social Media Accounts Created by TinyKittens Fans

Fans of the TinyKittens community have created Facebook pages of their own to share. These pages are not owned or operated by TinyKittens and are therefore considered *unofficial* pages. The majority of unofficial Facebook pages are for cats and kittens who have graduated from TinyKittens and have been adopted. TinyKittens encourages (but does not require) that those who adopt TinyKittens cats and kittens create a Facebook page for community members to follow. Community members become quite attached to the cats and kittens they watch on the live video streams and enjoy updates on those cats or kittens as they grow and become spoiled princes and princesses. A quick search on Facebook revealed over 50 different unofficial Facebook pages for TinyKittens graduates (see Figure 23).

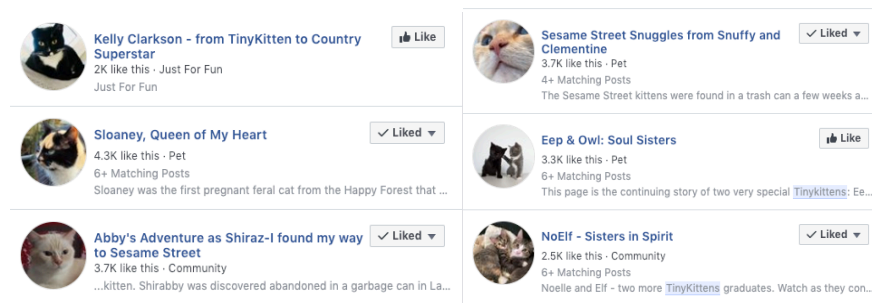


Figure 23: Examples of the Facebook pages created by the adopters of TinyKittens graduates.

Another set of unofficial Facebook pages are those created by community members to celebrate everything that is TinyKittens. Most of these Facebook pages are unaffiliated, meaning they were created by a TinyKittens fan, but not necessarily with the support of TinyKittens. There are also several affiliated Facebook pages, pages created by fans, with the knowledge and support of TinyKittens, and, most importantly, are allowed to use the TinyKittens logo, photos, and videos.

TinyKittens Unite (see Figure 24) is one of only a few affiliated Facebook pages. This page has over six thousand followers (as of 2019), multiple administrators, specific rules about posts and comments, and has permission to use the TinyKittens logo and photos on merchandise it sells to raise funds for TinyKittens. (*TKU Market* is

the associated Facebook page used exclusively for fundraising—no personal comments, stories, or questions are posted on *TKU Market*.) *TinyKittens Unite* uses its Facebook page for a number of purposes, including:

- to share information about TinyKittens,
- to raise money for TinyKittens Society through the sale of merchandise and raffle tickets, and
- to have a space where fans of TinyKittens can come to talk about all things cat- and kitten-related. (Administrators, n.d.)

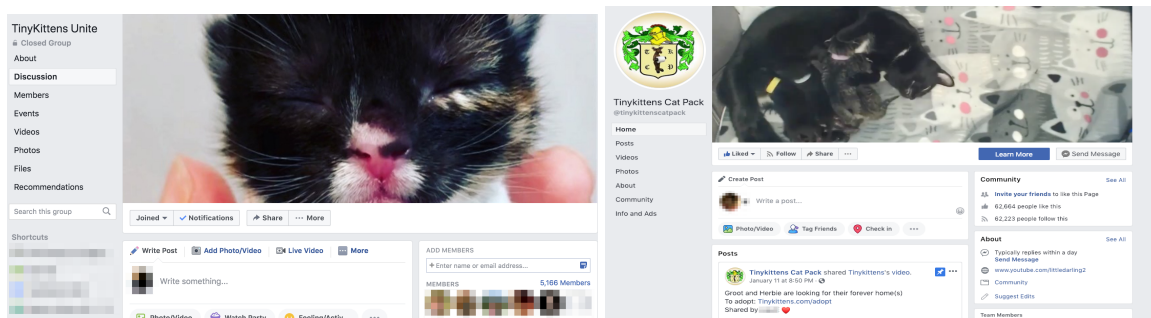


Figure 24 [left]: The *TinyKittens Unite* Facebook page.
Figure 25 [right]: The *TinyKittens Cat Pack* Facebook page.

TinyKittens Cat Pack (see Figure 25) is a good example of an unaffiliated and unofficial Facebook page. *TinyKittens Cat Pack* has over 63 thousand followers, but has only one administrator. It also does not have any page rules and is technically not permitted to use TinyKittens copyrighted material (although they do post screenshots from the live video stream and photos produced by Shelly). As per the *Cat Pack's* About page, the purpose of this Facebook page is for “cat aficionados...[to] enjoy good conversation, good stories, good music and good company” (Jones, n.d.).

There are also at least half a dozen other unaffiliated and unofficial Facebook pages related to TinyKittens. Some appear to have been created for specific geographic areas, others appear to have simply copied and pasted items from the TinyKittens official Facebook pages. Regardless of their origin, all have less than 100 followers and very few (recent) posts.

2.6.4 The Difference Between an Open and Closed Facebook Page

Facebook allows registered users to create both non-personal pages and groups (Hicks, 2010). All non-personal Facebook pages are public, meaning anyone with an internet connection can see what is posted on the page. Facebook groups can be either public or closed. Public groups share the same visibility rules as public pages, but closed groups are only accessible by registered users who have been granted membership. Creators of a closed Facebook group are also considered administrators and can assign other Facebook users as administrators. Administrators are able to view requests for membership and either grant or deny that membership.

All five official TinyKittens Facebook pages are public pages. In Facebook terms, all five of these public pages are considered Communities. (When a user creates a non-personal page, they are able to select what type of organization or purpose the page is for, such as Local Business, Artist, Band, Entertainment, Product, Community, etc.) *TinyKittens Cat Pack* is also a public Community page. *TinyKittens Unite*, however, is a closed group.

Pages and groups differ in one major way, pages are intended for one-to-many communication while groups are intended for many-to-many communication (Hicks, 2010). Both pages and group have owners and /or administrators. When an owner posts something to a public page, the post is *from* the page itself, not the administrator's personal account (see Figure 26). Responses to that post can come from any Facebook user in the form of a reaction or comment (see Figure 27). An individual Facebook user can post to a public page, but that post appears under a section called Visitor's Posts, not on News Feed for that page (see Figure 28). In other words, public pages are designed for one person, organization, company, band, etc., to post items for all their followers to see and respond to (one-to-many communication). Even though these public pages are considered communities, they are not designed for members to converse with each other.



Figure 26 [left]: An example post from the TinyKittens Facebook page, with the post *from* the page itself. Figure 27 [right]: An example of responses to a post on the TinyKittens Facebook page. Responses on a public page can be either comments or reactions, both are from the individual's Facebook account.



Figure 28: An example of posts from followers of the TinyKittens Facebook page. Posts like these are from individual Facebook accounts, but they do not appear in the News Feed for the page.

In a closed group, however, any member can write a post. That post will show up in that group's News Feed (and your personal News Feed, if you follow that group) and the post will be from that individual's account (see Figures 29 and 30). Other group members can then respond to that post with comments or reactions. Owners/administrators can also post in a closed group, but their posts will be from their individual accounts, not the group's account. In other words, closed groups were designed to allow all members to communicate with all other members (many-to-many communication).



Figure 29 [left]: An example post from the TinyKittens Unite Facebook page, when viewing the post from the page itself. Figure 30 [right]: An example post from the TinyKittens Unite Facebook page, in the personal News Feeds of group members.

This distinction is important because *TinyKittens Cat Pack* is an unofficial, public Facebook page. All posts on this page are written by the owners or administrators. Those posts are based entirely on what that person thinks is important at any given moment. Posts do not necessarily reflect the ideas, opinions, or thoughts of the community as a whole. *TinyKittens Unite*, on the other hand, is an unofficial, closed

Facebook group. Any member of the group can post anything they want, whenever they want. Posts are potentially more reflective of the community as a whole, when analyzed in aggregate.

2.7 Personal Involvement

The purpose of this section is to outline my personal involvement with TinyKittens. While I have had a decent amount of interaction with TinyKittens, and this is why I selected TinyKittens as the focus of my study, my involvement and interaction does not cause any issues with my ability to research TinyKittens academically.

I started watching the TinyKittens live video streams (and participating in the synchronous chat) in 2014. At the time, the TinyKittens Society did not yet exist and Shelly was fostering a pregnant momma cat—Dorothy—from LAPS. Shelly had one live video stream, on the Livestream platform, showing Dorothy (and eventually Dorothy's kittens) 24/7 from a room in her house.

Prior to 2014, I had been a regular viewer of the *Critter Room*, another live video stream of rescued cats and kittens. The *Critter Room* is run by John Bartlett, also known as Foster Dad John. John fostered cats and kittens for the Purrfect Pals rescue organization in Washington state. As a computer expert, he had the idea to broadcast his foster cats and kittens online as a way to raise awareness and funds for Purrfect Pals. It was while I was on the *Critter Room* in 2014 that I read a comment mentioning another cat rescue live stream called TinyKittens. I decided to check TinyKittens out and have been hooked ever since.

I watched the TinyKittens live video stream regularly while Dorothy was pregnant and got to see Dorothy give birth to her kittens. (Dorothy had been abandoned by her human family when she showed up pregnant.) Dorothy was not the first cat Shelly had put on a live video stream, she was maybe the second or third. Shelly's time broadcasting cats and kittens live on the internet had just started.

Since Dorothy in 2014, I have followed TinyKittens regularly. I follow all of TinyKittens official pages on Facebook and their account on Twitter. When *TinyKittens Unite* was created, I requested membership to that page. I was watching the live video stream when Livestream threatened to shut both the *Critter Room* and TinyKittens down because their video streams were taking up too much bandwidth. Which means I also watched TinyKittens (and the *Critter Room*) when they moved to YouTube.

Over the years, I have supported TinyKittens financially in a number of ways. I have purchased raffle tickets and merchandise via the *TKU Market*, where the merchandise is donated and all money raised goes to TinyKittens. I have purchased TinyKittens clothing on their official Etsy store. And I have had a VIP membership on and off since its inception (I purchase a subscription when something really interesting is being shown on the VIP stream).

It has been through this personal experience with TinyKittens (and the *Critter Room*) that I realized these were much more than just live video streams or Facebook pages. TinyKittens is a community of individuals from around the world who share very specific interests. They are also a community of individuals who want to help both TinyKittens and other individuals. And, they are a community of individuals who have found kindred spirits online with which to share stories, heartache, and ideas. It seemed to me that communities like TinyKittens could be beneficial to members. And if those benefits could be shown, it might not only give TinyKittens credibility, but could potentially provide a method through which other groups could find support and friendship online.

The TinyKittens online community is completely virtual. However, the TinyKittens Society is a real organization with real facilities and real volunteers. And, while most online community members tend to only know each other online, it is not unusual to hear of members meeting in real life or even visiting Langley, BC to see TinyKittens in person. For example, in 2017 I went on vacation to Vancouver Island. I stayed in Comox for a week and arranged to meet a fellow TinyKittens community member for coffee. Another example is from late 2018, after my cat Pippin passed away. I had posted on *TinyKittens Unite* that Pippin had passed and received condolences from community members. I also received a hand-knit shawl from a fellow community member in California who wanted to show her condolences with a gift.

My original interest in the *Critter Room* and TinyKittens came from my intense love of cats. I grew up with cats since elementary school (Sam, Baby, and Buddee). The first thing I did when I moved out on my own was adopt two of my own cats (Jasper and Pippin). When I moved to the United States for a few years, I adopted two more cats (Ben and Riley) and fostered a cat that I ended up keeping⁷ (Jasmine). Between 2013 and

7. Also known as a foster failure!

2015, I was a cat sitter in Edmonton and had more cat friends than human friends. And in 2016, I started fostering cats again and helped socialize three formerly feral kittens so that they could be adopted.

While I am definitely biased towards cats, I do not believe that cats are the only animal that could have the type of impact discussed in this study. Cats are also not the only animals with live video streams or Facebook pages. A quick search on Google or YouTube provides a list of dozens of live video streams of all sorts of animals, including birds, dogs, giraffes, bears, and more.⁸ Should anyone be inspired by this study, maybe future studies could look at other types of animals and/or organizations in order to show that it is not the animal which drives the benefits, but the human-animal bond shared within the community.

2.8 Chapter Conclusion

The purpose of this chapter was to provide context for this study in terms of *who*, *what*, and *why*. This context included the definition of terms, a review of internet studies including cats, a short history of the domestic cat, an overview of the TinyKittens Society and their presence on social media, and my personal involvement with TinyKittens.

There are many terms used in this study that are well-known, but may have multiple definitions depending on the context. Specific definitions for some of these terms (Emoji vs. Emoticon, Member vs. Follower/Subscriber, Pet, Social Media, Sticker vs. Reaction, and TNR) were included in this chapter in order to provide a working definition for use in this study.

Cats are fundamentally interesting and independent creatures who have wiggled their way into our homes, lives, and hearts over the course of thousands of years. After becoming a part of human existence, cats then proceeded to take over the internet. Even with this popularity, cats and the internet have not been studied extensively and the concept of the virtual human-animal bond has never been researched.

Before the TinyKittens Society was founded, Shelly Roche had already started a live video stream of her current foster cats or kittens. Since then, the popularity of TinyKittens has grown and now has over 1.5 million followers on Facebook and over 54

8. A great example is Explore.org, which hosts a number of live video streams of various wild and domestic animals.

million views on YouTube. They have also expanded from one Facebook account to five, each with at least nine thousand followers. Four of those five Facebook pages, plus an additional page created by fans of TinyKittens, are to be included in this study.

My involvement with TinyKittens began in 2014, when I learned about the live video stream from, you guessed it, another cat-related live video stream. I have been following and watching TinyKittens ever since. This involvement is not only the reason why I chose this research topic, it also allows me to better analyze the posts and comments. My personal experience and insider knowledge will allow me to see things that someone unfamiliar with TinyKittens may miss.

CHAPTER 3 LITERATURE REVIEW

"No matter how much cats fight, there always seem to be plenty of kittens." Abraham Lincoln

3.1 Chapter Overview

The previous chapter focused on the *who*, *what*, and *why* of this study, specifically *why* I selected TinyKittens as the focus of this study. This chapter continues looking at the *why*, but changing perspective to focus on *why* I selected this specific theoretical framework. Figure 31 provides a visual representation of that theoretical framework. The three main components are information worlds, virtual communities, and the human-animal bond. These components will be used to draw conclusions from the thematic analysis regarding the community-based (virtual) human-animal bond.

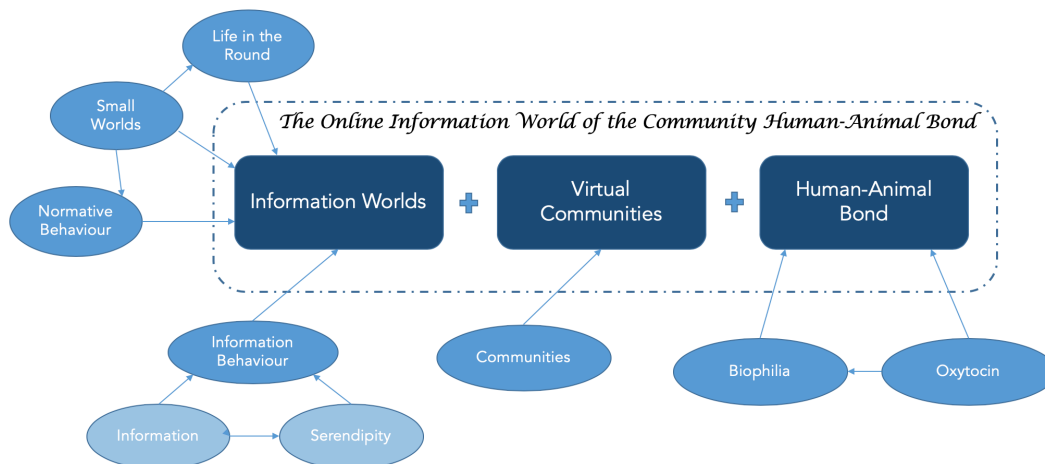


Figure 31: A visual representation of the theoretical framework for this study.

Each of the three main components in the theoretical framework have predecessor concepts on which they are built. The theory of information worlds draws from the concepts of small worlds and information behaviour, as well as the theory of normative behaviour. The concept of virtual communities builds upon the idea of communities, in general. And the biophilia hypothesis and the hormone oxytocin are used to help construct the concept of the human-animal bond.

This chapter explains the three main components, as well as many of the predecessor concepts, in detail. Section 3.2 starts the building process for the theory of information worlds by reviewing information and information behaviour. Unfortunately, as this section points out, there is no agreed upon, academic definition of *information*. For the

purpose of this study I will borrow a definition from Paul Jaeger and Gary Burnett which includes a wide array of information mechanisms and communication mediums. This section also reviews the types of information behaviour that may be used within the TinyKittens online community, such as needing, seeking, giving, and using information. Finally, this section ends with an overview of the difference between seeking and sharing information purposefully versus serendipitously.

Section 3.3 continues the building process for the theory of information worlds by reviewing two of the main theories developed by Elfreda Chatman—the theory of life in the round and the theory of normative behaviour. Both these theories use the concept of small worlds to help explain their elements and propositions. This section also provides an example of how the theory of normative behaviour was used to study virtual communities, before the theory of information worlds was developed.

Section 3.4 concludes the building process by providing details of the theory of information worlds, including how Chatman's and Habermas' theories were used in its development. This section also expands upon Chatman's propositions from her theory of normative behaviour to create five concepts that are used to explain and evaluate information worlds (social norms, social types, information behaviour, information value, and boundaries).

Section 3.5 starts by looking at the meaning of a community, which, like information, does not have an agreed upon definition within the academic community. A community, in general, is a group of people who share a place (Crow, 2007), although it has been argued that a common interest can substitute for location. This section then looks at the definition of a virtual community, which in complete contrast to information and community, has had a stable definition within the academic community for over 20 years. A virtual community is a group of people who share a common interest and communicate electronically about that interest on a regular basis.

Section 3.6 concludes the chapter with explanations of the biophilia hypothesis, the human-animal bond, and oxytocin. This section not only looks at each concept separately, but also explains how the biophilia hypothesis was a precursor to the human-animal bond by providing an explanation for why humans have an innate need to affiliate with other life forms (Wilson, 1984). Then this section explains how the psychological and physiological benefits of the human-animal bond are likely felt due to the production of oxytocin within the human body. This section ends with an

explanation of the benefits non-humans receive as part of the human-animal bond, although this aspect is not the main focus of this study.

3.2 Information & Information Behaviour

3.2.1 Information

The *Oxford Dictionary of English* defines information as, “facts provided or learned about something or someone” or “what is conveyed or represented by a particular arrangement or sequence of things” or “data as processed, stored, or transmitted by a computer” (Stevenson, 2010, p. 897). In Ford’s 2015 book titled *Introduction to Information Behaviour*, information is defined as, “a meaningful pattern of stimuli which can be converted into knowledge” and that “[i]nformation is data rendered meaningful via analysis and structuring” (p. 11). In Case and Given’s 2016 book titled *Looking for Information: A Survey of Research on Information Seeking, Needs, and Behaviour*, information is defined as, “any difference you perceive, in your environment or within yourself...[i]t is any aspect or pattern that you notice in your reality...[i]t is something that brings about a change in your take on the world” (p. 6). Jaeger and Burnett, in their 2010 book titled *Information Worlds: Social Context, Technology, and Information Behaviour in the Age of the Internet*, define information as, “the sum total of the content—facts, knowledge, feeling, opinion, symbols, and context—conveyed through communication between individuals or groups through any physical or virtual medium” (p. 14).

Four different books, four very different definitions. However, the last three agree upon one thing: that there is no consistently used definition of information within the academic community (Jaeger & Burnett, 2010; Ford, 2015; Case & Given, 2016). For the purpose of this study, the last definition, provided by Jaeger and Burnett, is the most appropriate. The information found, exchanged, sought, provided, and communicated through the TinyKittens online community includes facts, knowledge, feelings, opinions, symbols, and context. In addition, Jaeger and Burnett state that “information is the true driver of interpersonal relationships...and every other physical and virtual interaction in an age defined by the omnipresence of information and communication technologies” (p. 4).

3.2.2 Information Behaviour

Like the definition of information, a variety of definitions also exists for the term *information behaviour*. For the purpose of this study, information behaviour includes information *exchange*. Exchange, by its definition, means the “act of giving one thing and receiving another [thing] in return” (Stevenson, 2010, p. 609). From the perspective of the TinyKittens online community, members give and receive information, purposefully and serendipitously, every day.

Information exchange is a subset of information behaviour, which, according to Pettigrew, Fidel, and Bruce (2001), is “the study of how people need, seek, give, and use information in different contexts, including the workplace and everyday living” (p. 44). Information behaviour does not stipulate that these actions must occur *all at the same time*. Needing, seeking, giving, and using information can exist individually or in multiple combinations. In 1996, Wilson and Walsh presented a nested model for information behaviour that included the concepts of information searching and information seeking. In their definition, information behaviour is the overarching concept and it can include, but is not limited to, information seeking (Ford, 2015). They go on to include information searching as a part of this model, which is a subset of information seeking (Ford, 2015). This is very similar to the definition provided by Fisher, Erdelez, and McKechnie (2006) in their book *Theories of Information Behaviour*, “information behaviour [includes] how people need, seek, manage, give, and use information in different contexts” (p. xix). Ford (2015) points out that information behaviour includes other activities, such as information evaluation, information use, information management or organization, information exchange, information needs, and even information avoidance (pp. 15-16). Ford (2015) builds upon these definitions to develop an all-encompassing definition of information behaviour that works well in the context of this study—when applied to looking for information *purposefully*.

Information behaviour is engaging in any or all of the following activities:

- perceiving some information-related need,
- coming into contact with information potentially relevant to some need,
- assessing the suitability of information in relation to some information-related need,

- using information or knowledge, and
- organizing information for one's own use. (p. 23)

When an individual has need for information, and they specifically go somewhere to look for that information, Ford's definition works well. This type of information seeking is normally used to "support actual decision-making or to resolve an information problem" (Fidel, 2012, p. 22). But not all TinyKittens online community members go to TinyKittens to *purposefully* make a decision or to solve a problem. Sometimes they go to TinyKittens for entertainment, and happen upon information that is useful for another purpose.

When a TinyKittens community member goes to TinyKittens for a reason other than making a decision or solving a problem (e.g., entertainment), but happens upon information that is useful to them, it is referred to as serendipity (or information encountering). From a research perspective, an event can be considered serendipitous if it meets the following five conditions:

1. There is an observation that is unanticipated, anomalous, unexpected, unpredictable, or inconsistent with existing findings...
2. The individual involved must have the human cognitive capacity and ability or knowledge and experience to make that observation...
3. [T]he individual also must have the human mental space at the time to absorb it, and recognize its value, and the perseverance to then act on it...
4. There is a gestation period so that the anomaly or surprise can be explored, interpreted, and analyzed...
5. There is a valuable outcome...at the individual level, it may lead to a change in direction, or personal problem solved...

(McCay-Peet & Toms, 2018, pp. 4-6)

McCay-Peet and Toms (2018) discuss different types of serendipity, all of which can be found on TinyKittens. One type of serendipity is when someone has a primary problem, goes looking for the solution to that primary problem, but comes upon the solution to a secondary problem (McCay-Peet & Toms, 2018). In this case, the secondary problem is already known, but is not actively being solved. Another type of serendipity is when someone goes looking in place alpha for the solution to a

problem, somehow ends up in place beta (maybe via web surfing), and finds the solution to their problem (McCay-Peet & Toms, 2018). In this case, the problem is being actively solved, but the place where the solution was found was not intentional.

Every TinyKittens online community member is different and the purpose for each visit to TinyKittens is different. One member may find information both purposefully and serendipitously on the same day, maybe even at the same time. Others may find useful or beneficial information every time they visit TinyKittens. Yet others may never find anything more than entertainment. The TinyKittens online community is a space where information is exchanged—both purposefully and serendipitously—on a daily basis.

3.3 Life in the Round & Normative Behaviour

Elfreda Chatman was a well-known and respected library and information studies researcher. Between her doctorate dissertation in 1983 and her death in 2002 she wrote a variety of articles that evolved into three theories still used today. Chatman focused her research on everyday information behaviour, specifically information worlds⁹ inhabited by marginalized people (Fulton, 2010; Thompson, 2009; Burnett, Fisher, Fulton, & Hersberger, 2006), such as: low-skilled workers, the working poor, retired women, and women in prison. From this research came three theories: the theory of information poverty, the theory of life in the round, and the theory of normative behaviour.

While Chatman's focus was marginalized populations, she believed these theories could be applied to anyone (Fulton, 2010). This is because one of her main concepts was that of the *small world*, which is defined as "societ[ies] in which mutual opinions and concerns are reflected by its members...in which language and customs bind its participants to a worldview" (Chatman, 1999, p. 213). Everyone participates in at least one small world in the course of their daily lives. Chatman used ethnography almost exclusively, opting to go into the world of the people she was studying to interview them about their information behaviour (Fulton, 2010). She felt that "entering the field and experiencing other people's information worlds firsthand were the only ways to understand people's everyday lives" (Fulton, 2010, p. 245).

9. Not to be confused with the theory of information worlds by Jaeger and Burnett.

3.3.1 The Theory of Life in the Round

Chatman's 1999 article in the *Journal of the American Society for Information Science* introduced the theory of life in the round. She used her study of women prisoners as the basis for her analysis and examples in this article. According to Chatman (1999), information is really a type of performance. This performance includes a "narrative that is easily adaptable to the expectations and needs of members of a small world" (Chatman, 1999, p. 208). This performance is created within and for a specific context that "fits into the everyday reality of life" and is considered a system (Chatman, 1999, p. 208). That system leads to the worldview shared by small world members and includes: "ideas, expectations, standards, and values" (Chatman, 1999, p. 209). The end result is a shared experience amongst the members of a specific small world, which provides meaning for those members (Chatman, 1999).

Members of a small world share the same worldview based on their "mutual opinions and concerns" as well as their "language and customs" (Chatman, 1999, p. 213). Small worlds also share social norms and social types. Social norms "are the customary patterns that take place within a small world...[which provide] a sense of balance...[and] codes of behaviour" (Chatman, 1999, p. 213). Social types categorize members of a small world into different groups based on how they behave and what information they have (Chatman, 1999).

These four concepts of worldview, small worlds, social norms, and social types combine to make a *life in the round*. In Chatman's (1999) terms, a life in the round is "a life with an enormous degree of imprecision and...accepted levels of uncertainty" (p. 211). A life in the round is also a life lived in public, where "certain things are implicitly understood" (Chatman, 1999, p. 212) and where individuals perform self-protective behaviours in order not to appear abnormal, unusual, or to elicit unwanted attention (Chatman, 2000). Chatman (1999) provides six propositions that further define a life in the round.

Proposition 1: A **small-world** conceptualization is essential to a "life in the round" because it establishes legitimized others (primarily insiders) who set boundaries on behaviour.

Proposition 2: **Social norms** force private behaviour to undergo public scrutiny. It is this public arena that deems behaviour—including information-seeking behaviour—appropriate or not.

Proposition 3: The result of establishing appropriate behaviour is the creation of a **worldview**. This worldview includes language, values, meaning, symbols, and a context that holds the worldview within temporal boundaries.

Proposition 4: For most of us, a **worldview** is played out as life in the round. Fundamentally, this is a life taken for granted. It works most of the time with enough predictability that, unless a critical problem arises, there is no point in seeking information.

Proposition 5: Members who live in the round will not cross the **boundaries** of their world to seek information.

Proposition 6: Individuals will cross information **boundaries** only to the extent that the following conditions are met: 1) the information is perceived as critical, 2) there is a collective expectation that the information is relevant, and 3) a perception exists that the life lived in the round is no longer functioning. (p. 214)

Members of a small world “are concerned [only] with their own small world, the creation and support of roles in that world, and information that can be used there” (Fulton, 2010, p. 249). Because members of a small world live life in the round, they do not look for information outside of that small world as their worldview makes them suspicious of information that comes from outsiders (Fulton, 2010). This belief can cause problems when searching for and evaluating information because “an individual’s reality is a socially constructed reality” (Chatman, 1999, p. 215).

The TinyKittens online community would meet almost all of the requirements of Chatman’s life in the round, except for the fact that TinyKittens members actively seek information outside the boundaries of the TinyKittens small world. It could also be argued that each social media platform on which TinyKittens has an account (and associated followers or subscribers) is each its own small world. For example, the TinyKittens Facebook small world could be considered different from the TinyKittens YouTube small world because they each have their own set of social norms and social types. Because of this, and the boundaries exception, the theory of life in the round, while useful in other contexts, may not be the best option for this study.

3.3.2 The Theory of Normative Behaviour

In the words of Chatman (2000) herself, she created the theory of normative behaviour “to explain the common or routine events that characterize the everyday reality of people who share a similar cultural space” (Chatman, 2000, p. 10). Like the theory of life in the round, the theory of normative behaviour includes the concepts of social norms, social types, worldview, and information behaviour (Chatman, 2000). While the concept of a small world is not explicitly mentioned as one of these concepts, it is still a required part of the theory. Small worlds, in this theory, are “social environments in which an interconnected group of individuals live and work, bonded together by common interests, expectations, and behaviours, and often [but not always] by economic status and geographic (or ‘virtual’) proximity” (Jaeger & Burnett, 2010, p. 21) This definition of a small world is an excellent description of the TinyKittens online community.

The definitions of social norms, social types, and worldview are the same for this theory as they were for the theory of life in the round. Information behaviour, which is new to this theory, is considered the context in which the information is required (by members of a small world) and will determine how a small world member will or will not act on information they have received or found (Chatman, 2000). Information behaviour is unique to each small world. The information behaviour of a particular small world demonstrates the way in which that small world builds community and provides support via social functions (Fulton, 2010).

From Chatman’s (2000) perspective, “[n]ormative behaviour...is viewed by inhabitants of a social world as most appropriate for that particular context...[it] provides a predictable, routine, and manageable approach to everyday reality” (p. 13). (At times, Chatman uses the term *social world* instead of *small world*. Based on the way in which she uses these two terms, they appear to be interchangeable.) From the perspective of Fulton (2010), normative behaviour “pertains to adherence to socially accepted behaviour” (p. 252) of that small world. Putting these concepts together, Chatman (2000) developed five propositions for the theory of normative behaviour, which are:

Proposition 1: Social norms are standards with which members of a social world comply in order to exhibit desirable expressions of public behaviour.

Proposition 2: Members choose compliance because it allows for a way by which to affirm what is normative for this context at this time.

Proposition 3: *Worldview* is shaped by normative values that influence how members think about the ways of the world. It is a collective, taken-for-granted attitude that sensitizes members to be responsive to certain events and to ignore others.

Proposition 4: Everyday reality contains a belief that members of a social world do retain attention or interest sufficient enough to influence behaviour. The process of placing persons in ideal categories of lesser or greater quality can be thought of as **social typification**.

Proposition 5: Human **information behaviour** is a construct in which to approach everyday reality and its effect on actions to gain or avoid the possession of information. The choice to decide the appropriate course of action is driven by what members' beliefs are necessary to support a normative way of life. (pp. 13-14)

As already mentioned, the theory of life in the round and the theory of normative behaviour are very similar. They share the concepts of social norms, social types, and worldview. The theory of normative behaviour, however, includes the additional concept of information behaviour. The biggest restriction of the theory of life in the round is that members of a particular small world do not actively seek information from outside that small world (Chatman, 1999). If they do happen upon information from outside their small world, it is not treated with the same level of trust as information from within the small world (Chatman, 1999). The theory of normative behaviour does not explicitly mention that members of certain small worlds never look for information outside that small world. Instead, it implies that the worldview of small world members will shape how they view and use such information (Chatman, 2000). This added element of the theory of normative behaviour provides some potential for its application to this study.

3.3.3 Applying the Theory of Normative Behaviour

After writing about her theory of normative behaviour for the first time in 2000, Chatman partnered with Burnett and Besant to apply the theory to two specific small

worlds. This study resulted in the 2001 article titled “Small Worlds: Normative Behaviour in Virtual Communities and Feminist Bookselling.” The two small worlds studied are outlined in the title: virtual communities (in general) and a specific community of feminist booksellers. As per Burnett, Besant, and Chatman (2001), “virtual communities are ideal contexts in which to investigate the concepts that make up the theory of normative behaviour” (p. 539). Virtual communities, unlike in-person communities, tend to have clearer and more stable boundaries (Burnett et al., 2001), which is true of the TinyKittens online community. Like in-person communities, virtual communities provide members with “informational and emotional support” (Burnett et al., 2001, p. 539), which is a benefit of membership in the TinyKittens online community.

Burnett, Besant, and Chatman (2001) did not focus on a particular virtual community in their study, but rather looked at virtual communities in general. The authors found that social norms could often be found explicitly in a virtual community’s frequently asked questions (FAQs) (Burnett et al., 2001). But explicitly written social norms are not the only social norms found in a virtual community. Often, social norms are found implicitly through the discussion of “attitudes, interests, and language of participants” (Burnett et al., 2001, p. 542).

The worldview of a virtual community is more implicit in nature and can be found by reviewing discussions between members rather than through any written documents like FAQs (Burnett et al., 2001). Social types, on the other hand, can be fairly obvious, such as an administrator or a moderator; or they can be less obvious, such as a lurker who only observes the interactions but does not participate (Burnett et al., 2001). Information behaviour is more recognizable because “participants may be drawn to a particular [virtual] community...because of its particular subject focus, and may join...to monitor it as a potential information source” (Burnett et al., 2001, p. 545). Those participants “take part in general socializing and socio-emotional support, and other daily activities” (Burnett et al., 2001, p. 545) not only as a means of social interaction, but as a means of information exchange.

Based on their findings in both virtual communities and the *Women in Print Movement*, the authors concluded that “[t]he theory of normative behaviour provides...a reasonable conceptual strategy for examining and evaluating both the place of information within a social world and the socially valued interactions

between people and individuals and information in that world” (Burnett et al., 2001, p. 545).

3.4 Information Worlds

3.4.1 The Theory of Information Worlds

The theory of information worlds was created by Jaeger and Burnett in an attempt to bridge the gap, or in their words, “bridge the canyonesque gaps” (2010, p. 1), between how information is studied in small groups versus how information is studied in large groups or societies. They wanted to develop a theory that could “serve as a framework for advances not only in theoretical work in library and information science and other fields but also for empirical investigations of social dimensions of information and information use” (Jaeger & Burnett, 2010, p. 1). The purpose of the theory is to explain “interactions between information, information behaviour, and the many different social contexts within which they exist” (Jaeger & Burnett, 2010, p. 7). The theory asserts that human information behaviour is influenced by small and local sources, as well as large societal, political, technological, religious, etc., sources, and all the sources in-between or any combination of sources (Jaeger & Burnett, 2010). Jaeger and Burnett refer to local sources as small worlds and larger sources as lifeworlds.

Small worlds are “defined as the social environments in which an interconnected group of individuals live and work, bonded together by common interests, expectations, and behaviours, and often by economic status and geographic (or ‘virtual’) proximity” (Jaeger & Burnett, 2010, p. 20). This is the same definition used by Chatman in her theories of life in the round and normative behaviour. Examples of small worlds are plentiful, including immediate family, colleagues at work, members of a hobby-related group, students in a specific class, fans of a specific sports team, etc. A lifeworld “is a collective information and social environment that weaves together the diverse information resources, voices, and perspectives of all the members of society” (Jaeger & Burnett, 2010, p. 26). If the lifeworld is considered society-at-large, then every small world in existence is a part of that lifeworld. The theory of information worlds also allows for intermediate worlds, which are both part of the lifeworld and may contain multiple small worlds (Jaeger & Burnett, 2010).

However, it is important to note that the way in which each small (and intermediate) world views or understands the lifeworld differs. Each small and intermediate world has a unique perspective due to the unique structure, history, culture, etc., of that world, which influences the way in which they view other worlds (Jaeger & Burnett, 2010).

The theory of information worlds focuses on five concepts: social norms, social types, information value, information behaviour, and boundaries (Jaeger & Burnett, 2010). These five concepts are defined as,

Social Norms: a world's shared sense of the appropriateness of social appearances and observable behaviours,

Social Types: the roles that define actors and how they are perceived within a world,

Information Value: a world's shared sense of a scale of the importance of information,

Information Behaviour: the full range of behaviours and activities related to information available to members of a world, and

Boundaries: the places at which information worlds come into contact with each other and across which communication and information exchange can—but may or may not—take place.

(Jaeger & Burnett, 2010, p. 8)

Social norms, social types, and information behaviour have the same definitions as Chatman's theory of normative behaviour. Information value is a modified version of the worldview concept. But, the boundaries concept is new to the theory of information worlds and represents the combined ideas of small worlds, intermediate worlds, and the lifeworld (Jaeger & Burnett, 2010). Individuals can be members of multiple small and intermediate worlds and may be gatekeepers of the information that is exchanged between those worlds, via the boundaries (Jaeger & Burnett, 2010).

3.4.2 The Development of Information Worlds

The theory of information worlds came together by combining two existing theories; one from Chatman (an information theorist) and the other from Habermas (a philosopher). Chatman spent time examining information behaviour in small, local worlds. While Habermas spent time examining information and communication in large, society-based worlds. The theory of information worlds uses the combined

concepts explored by Chatman and Habermas in order to develop an understanding of information behaviour in and among worlds of different sizes (Jaeger & Burnett, 2010).

Habermas based his theory on the concept of the public sphere, which is “defined as ‘the sphere of private people com[ing] together as a public’” (Jaeger & Burnett, 2010, p. 10). Part of the concept of the public sphere is the lifeworld, defined as a “collective environment of information and communication that links members of an otherwise disparate society” (Jaeger & Burnett, 2010, p. 10). The unfortunate part about Habermas’ theory is that it does not take sections of society (aka., small or intermediate worlds) into account.

Chatman, on the other hand, specifically looked at smaller sections of society, or small worlds, in her theories. However, she left out any world larger than a small group. Chatman “focus[ed] on the values and perspectives toward information of individual social groups,” where “[t]he small world is a social group in which ‘mutual opinions and concerns are reflected in its members’” (Jaeger & Burnett, 2010, p. 12). Since “being a part of [a] group gives individuals a stake in the context and actions of the group,” Chatman focused on the day-to-day activities of small groups (or worlds) that become the standards of that group and are eventually taken for granted (Jaeger & Burnett, 2010, p. 12). Taken together, the theories of Chatman and Habermas can be used—as the theory of information worlds—to examine the ways in which information is communicated within and among small worlds, as well as the effect of the lifeworld on how information is understood by members of worlds of all sizes.

3.4.3 Applying the Theory of Information Worlds

Jaeger and Burnett (2010) provide a number of examples of how the theory of information worlds can be used in research studies. In general, they suggest studies related to news and media, democracy, information rights, and information politics (Jaeger & Burnett, 2010). Their own studies have included the information worlds of the Bush Administration, the fourth branch of government in the US, and homeland security (Jaeger & Burnett, 2010).

One specific topic Jaeger and Burnett suggest for the theory of information worlds is to “conceptualize and analyze information problems and offer practical

solutions...in the context of emergency situations” (Jaeger & Burnett, 2010, p. 148). They provide examples of information issues that arose during the 1993 World Trade Centre bombing, 9/11, and Hurricane Katrina as situations that could benefit from analysis via the theory of information worlds (Jaeger & Burnett, 2010). Some possible areas of focus could be the exchange of information between different emergency agencies, such as “the information worlds of different government and non-profit responders” plus the “small worlds of different residents” (Jaeger & Burnett, 2010, p. 150). The theory could also be used to review the ways trust could be increased vis-à-vis emergency information, how libraries acted as emergency information sources during the hurricane seasons of 2004 and 2005, and the way in which information travels from traditional media outlets to the internet (Jaeger & Burnett, 2010). Other research topics mentioned by Jaeger and Burnett (2010), many of which are covered in this study, include:

- “[E]xploration of the ways in which different small worlds balance the elements of information value—perception, content, control, access, benefit, utility, format, and commodity.” (p. 153)
- “[A]pproaches of different small worlds to physical information access, their social norms and information behaviour related to their chosen means of access, and the impacts on technologically disadvantaged small worlds.” (p. 153)
- “[W]ays in which small worlds establish a frame through which an individual views information that has been accessed.” (p. 153)
- “[W]ays that information moves within a small world and across the boundaries between small worlds.” (p. 154)
- Public libraries as a “place where small worlds gather, interact...and are exposed to information.” (p. 154)
- “The geography-defying connections of the Internet [that] allow[s] for the creation of previously impossible small worlds.” (p. 155)
- How the “increasing use of social networking...continues to make it harder to avoid exposure to information from outside the boundaries of particular small worlds.” (p. 155)

- “[T]he significance of...seemingly trivial information to members of specific worlds...[and] the ways in which it is intertwined...with political, social, or other information coming...from beyond their boundaries.” (p. 155)
- “[P]rovid[e] a lens through which to analyze how corporate and organizational structures impact information use.” (p. 157)

3.4.4 Research that has Used the Theory of Information Worlds

Before Burnett and Jaeger (2011) officially developed their theory of information worlds, they tested their developing theory in their research. For example, in 2008, two years before the theory’s publication, Burnett and Jaeger (2011) conducted research on “federal information policy” (p. 175) and the way in which “multiple information worlds play roles as stakeholders in...events involving public libraries, resulting in conflict and controversy” (p. 175). Burnett (2009) conducted a study in which he focused on a specific event called the Thanksgiving Day Massacre and its subsequent fallout on archive.org. In 2005, the Internet Archive changed its policy regarding the availability of Grateful Dead live concert recordings (Burnett, 2009). This change caused an immediate and intense reaction from Deadhead forums on the site, which eventually led to a further intense reaction from Deadhead online communities outside archive.org (Burnett, 2009). The change, however, was actually initiated by the remaining members of the Grateful Dead themselves (and/or their representatives) in an attempt to limit the exchange of recordings for which they did not receive a royalty (Burnett, 2009). Burnett (2009) looked at the ways in which information flowed between the three stakeholder groups (archive.org, Deadheads, and the band) due to the boundaries developed between them. The study showed how these three small worlds shared a portion of the same worldview (or information value), but the differences in that worldview were enough to cause significant issues with information behaviour (Burnett, 2009).

Burnett and Jaeger (2011) also used the theory to analyze how “personal health records, through their content, design and structure, ‘project’ information worlds that may or may not align with...expectations, values and information behaviours of...potential users” (p. 175). Burnett, Subramamiam, and Gibson used the information worlds theory “as a framework for analyzing the role of gender in the

information worlds of Latinas working in the [IT] field” (Burnett & Jaeger, 2011, p. 175). Burnett also investigated “the lifecycles of virtual scientific teams and the effectiveness of long-term collaborations of scientists...to determine whether the...theory can help to explain the success of some teams over the long term” (Burnett & Jaeger, 2011, p. 176).

Since the theory’s publication, many researchers have used the theory of information worlds in their own studies, a few of which are outlined here. In 2016, Käsäkosko and Huotari published a study on how information exchange occurs between members of a “multiprofessional collaboration [team] in an integrated care pathway” (p. 321) at hospitals in Finland. They used the theory of information worlds to conclude that, due to the organizational culture at the hospitals, the small world associated with primary health care providers did not exchange information effectively with the small world of special health care providers (Käsäkosko & Huotari, 2016). This study concluded that a lack of trust existed between members of each small world and it resulted in members preferring to obtain information only from within their small world (Käsäkosko & Huotari, 2016).

In 2018, Muhambe published a study that analyzed the sources of information used by African immigrants to Cape Town, South Africa. Muhambe (2018) found that several small and intermediate worlds existed within this population, including newer immigrants versus more settled immigrants and those that already spoke English. New immigrants preferred to gather information from friends and family, rather than more formal sources like non-profits and the government. Whereas, those who had been in Cape Town longer tended to be more comfortable seeking information from formal sources (Muhambe, 2018). Muhambe (2018) also found that those who did not speak English before their arrival in Cape Town experienced the most intense boundaries between their small world and the small worlds associated with public libraries, non-profits, and the government.

3.5 Virtual Communities

3.5.1 Community

The *Blackwell Encyclopedia of Sociology* notes that a *community* is considered a group of people who share a place, such as a neighbourhood, workplace, etc. (Crow, 2007). In

separate articles, Crow (2007) and Jones (1997) both emphasize that sociologists have been arguing about the exact definition of *community* for some time, specifically regarding the importance (or lack thereof) of place or physical location. For example, some would argue that a community can be based on a common interest (e.g., cats) or a common identity (e.g., breast cancer survivors), rather than a common physical location.

Regardless of the exact definition of a *community*, they are, in general, beneficial to their members. Feeling as though one belongs to a community helps people feel safe and reduces the symptoms of depression (Gonyea, Curley, Melekis, & Lee, 2017). And, studies have also shown how resilience and community belonging increases a person's participation in society (Levasseur, Roy, Michelle, Hilaire, Maltais, & Genereux, 2017) and that community belonging can help those with mobility issues enjoy social participation (Sundar, Brucker, Pollack, & Chang, 2016). A sense of community belonging can also help sedentary adults become more active, which in turn makes them physically healthier (Anderson, Currie, & Copeland, 2016).

McMillian and Chavis (1986) developed a definition for *sense of community* that includes four parts: membership, influence, integration and fulfillment of needs, and shared emotional connection. *Membership* is another way to describe a sense of belonging (McMillian & Chavis, 1986). *Influence* is the way community members make a difference to each other (McMillian & Chavis, 1986). *Integration and fulfillment of needs*, also known as reinforcement, is the feeling community members receive when their needs are fulfilled by the community (McMillian & Chavis, 1986). And a *shared emotional connection* is community members sharing experiences and feelings (McMillian & Chavis, 1986). A sense of community, based on this definition, nicely describes the ways in which members of the TinyKittens online community benefit from their membership.

Crow (2007) points out that it can be difficult to study a community because they tend to be more open to existing members (i.e., insiders) than outsiders. This would imply that it is easier to study a community of which you are a member. However, Crow (2007) points out that online or virtual communities could be an exception to this rule, especially if the online community is publicly available to non-members. Studying a community as an outsider, in a real-life situation, means the researcher is physically seen (or heard) by members and would be recognized as someone who is

not typically part of that community, which, in turn, may cause members to alter their behaviour. An online or virtual community, however, can be observed without members knowing. For example, any public page on Facebook can be viewed by anyone with an internet connection, even if they do not have a Facebook account. And, while Facebook records the number of comments, reactions, and shares a specific post receives, it does not record the number of views a post receives.¹⁰ Section 4.4, in the next chapter, provides an overview of the related ethical considerations I reviewed prior to conducting such a study.

3.5.2 Virtual or Online Communities

In 1987, Rheingold wrote an article titled “Virtual communities — exchanging ideas through computer bulletin boards,” where he introduced the term *virtual community* (Rheingold, n.d.; Rheingold, 2008). In his 1987 article, Rheingold defined virtual communities as,

[A] group of people who may or may not meet...face to face, and who exchange words and ideas through the mediation of computer bulletin boards and networks...it is also a collection of people who adhere to a certain...social contract, and who share certain...interests. It usually has a geographically local focus, and often has a connection to a much wider domain. (Rheingold, 2008, p. 3)

In his 1993 book titled *The Virtual Community*, Rheingold narrowed his definition of virtual communities to “social aggregations that emerge from the Net when enough people carry on those public discussions long enough, with sufficient human feeling, to form webs of personal relationships in cyberspace” (Rheingold, 1993, n.p.).

Rheingold’s (1993) definition was based on his personal experiences in a computer conferencing system called WELL, or Whole Earth ‘Lectronic Link, in which he participated. (Just think about how slow that must have been!)

In 2000, Burnett created a typology of information exchange within virtual communities where he defined virtual communities as online participants who: focus on specific shared interests; are not in the same geographic location; rely on textual activity for communication; and “social spaces supporting textual ‘conversations’

10. One exception is videos on Facebook. If a video is allowed to play for longer than a certain amount of time, Facebook records that as one view. This happens whether the user was purposely watching the video or not.

through which participants can find both socio-emotional support and an active exchange of information” (Burnett, 2000, n.p.). Burnett (2000) also found that virtual communities include both non-interactive and interactive behaviours. The main non-interactive behaviour discussed is that of a lurker: individuals who opt to observe and read text from the virtual community, rather than write or share any of their own (Burnett, 2000). Interactive behaviours are further divided by those that are hostile and those that are collaborative or positive (Burnett, 2000). Hostile interactions include flaming, trolling, spamming, or cyber-rape (Burnett, 2000). Collaborative interactive behaviours are again further divided between those that are “not specifically oriented towards information” and those that are specifically related to information exchange (Burnett, 2000, n.p.). Collaborative behaviours not related to information include pleasantries and gossip, language games and other types of play, and emotional support. (Burnett, 2000). Collaborative behaviours that relate to information include announcements, specific requests for information, and directed group projects (Burnett, 2000).

In a 2011 book chapter (from the *Handbook of Research on Methods and Techniques for Studying Virtual Communities*), Daniel provided two virtual community definitions he had sourced from other authors. One definition, which he quotes from the book *Online Communities: Designing Usability, Supporting Sociability*, written by Preece in 2000, defines a virtual community as “members who share an interest, who interact repeatedly, generate shared resources, develop governing policies, demonstrate reciprocity, and share cultural norms” (Daniel, 2011, p. 3). The second definition is Rheingold’s 1993 definition, already stated above. Daniel (2011) goes on to list the “fundamental features of virtual communities” (p. 3), which include:

1. Membership - non-binding, global, and from any cultural and/or national identity.
2. Anonymity - choice of level of transparency.
3. Domain-focused - shared interests.
4. Communication - continued interaction.
5. Social protocols - informal and formal conventions of online behaviour, style, language, and modes of engagement.
6. Space-time - specially disembodied and temporally synchronous or asynchronous.

7. Shared meaning - communicated and shared among members.
8. Voluntary - members are free to lurk, contribute, or withdraw.
9. Speed - relationships can become intense more quickly online.
10. Delusive behaviour - people feel more courageous online.
11. Visual clues - lack of visual context which may lower inhibitions.
12. Deep reflection - members can take their time reading and contributing.
13. Virtualization and actualization of relationships - movement of relationship from online to offline, or vice versa.
14. Structure - distinct structure with well-defined responsibilities and roles.
15. Identity - ability to identify and access resources to enhance information sharing. (Daniel, 2011, pp. 3-4)

In the same 2011 book, Poon and Daniel dedicated a chapter to the “challenges of analyzing informal virtual communities” (p. 585). Much of this chapter focused on social network analysis, which will not be described here, but the authors did include a summary of the characteristics associated with formal and informal virtual communities (see Table 3).

Table 3

Characteristics of Formal and Informal Virtual Communities as per Poon & Daniel

Characteristics	<i>Formal Virtual Communities</i>	<i>Informal Virtual Communities</i>
Membership	Stable	Some variation
Goals	Explicit	May be implicit
Supporting technologies	Asynchronous and synchronous	Mainly synchronous but some asynchronous technology may apply
Social protocols	Explicit	Implied or may not exist
Growth	Planned and stable	Unplanned, may die without warning
Type of awareness	Professional, demographic, tasks, and social awareness	Might vary
Trust level	Tends to be high	Might be difficult to determine

Characteristics	<i>Formal Virtual Communities</i>	<i>Informal Virtual Communities</i>
Discourse directions	Moderated	Might not be moderated
Ownership	Institutional	Open
Nature of data	Cleaned	Noisy
Social networking	Strong	May be weakened due to anonymity
Privacy	Safe	May be threatened

Note: Poon & Daniel, 2011, p. 586.

The similarities between Daniel's fundamental features of virtual communities and Poon and Daniel's characteristics of formal versus informal virtual communities is apparent. Of the 15 features Daniel outlines, 10 seem to be shared with Poon and Daniel's characteristics. Only the characteristics of growth and type of awareness do not appear to have an equivalent fundamental feature.

In 2017, Porter published an article titled "A Typology of Virtual Communities: a Multi-Disciplinary Foundation for Future Research," which defined a virtual community as an "aggregation of individuals or business partners who interact around a shared interest, where the interaction is at least partially supported and/or mediated by technology and guided by some protocols or norms" (n.p.). Porter also wrote that virtual communities do not have to be entirely online, it is possible for members of a virtual community to also have offline relationships (Porter, 2017). TinyKittens is a perfect example of a virtual community that has both online and offline components. Porter also wrote that virtual communities can be mediated by any type of technology—desktops, laptops, tablets, smartphones, etc. (Porter, 2017). While Porter's discussion about technology focuses on hardware, it could be argued that virtual communities can be mediated by any type of software as well (i.e., there is no limitation on what type of software can be used to create and maintain a virtual community). Finally, Porter (2017) includes norms in her definition (including "roles, protocols, [and] policies" [n.p.]), which aligns well with the concepts of social norms and social types from the theory of information worlds.

In her 2017 article, Porter proposed a typology of virtual communities which she displayed as a hierarchy. In her typology, virtual communities were either member-initiated or organization-sponsored. Member-initiated virtual communities were divided into social or professional virtual communities, while organization-sponsored virtual communities were divided into commercial, non-profit, or

government communities (Porter, 2017). In the case of the TinyKittens online community, I would argue that parts of it are organization-sponsored (e.g., official Facebook and YouTube accounts), while other parts are member-initiated (e.g., TinyKittens Unite). However, it could also be argued that official and unofficial Facebook pages and the official YouTube channel are each their own small world, and therefore each their own virtual community. Combined together, they make up a larger intermediate world and virtual community. Porter provides five attributes she associated with virtual communities, although she wrote that not all attributes apply to all virtual communities (Porter, 2017). Those five attributes are,

1. Purpose (Content of Interaction)...the specific focus of discourse, or focal content of communication, among community members.
2. Place (Extent of Technology Mediation of Interaction)...the location of interaction, where interaction occurs either completely virtually or only partially virtually.
3. Platform (Design of Interaction)...the technical design of interaction in the virtual community, where designs enable synchronous...[and]...asynchronous communication or both.
4. Population (Pattern of Interaction)...the pattern of interaction among community members as described by group structure...and type of social ties.
5. Profit Model (Return on Interaction)...whether the community creates tangible economic value where value is defined as revenue-generation. (Porter, 2017, n.p.)

The above-noted virtual community definitions are not the only ones cited in the research literature. Pai and Arnott (2013) consider a virtual community to be “computer-mediated social spaces of intentional actions in which members create content through ongoing communication processes” (p. 1040). The online portion of the TinyKittens community is completely mediated by computer technology (e.g., Facebook, YouTube, etc.). Members intentionally create content by writing posts and comments, by sharing photos and videos, and by asking and answering questions. Pai and Arnott (2013) wrote that virtual communities “attract users seeking topic-oriented content” (p. 1040), such as content associated with cats and kittens. And

virtual communities “generate interactions among like-minded strangers who share...their knowledge...and experience” (Pai & Arnott, 2013, p. 1040), which, as already mentioned, happens daily on the TinyKittens online community.

De Oliveira and Huertas (2015) wrote that virtual communities “bring together different people with a common goal of sharing knowledge, entertainment, and maintain[ing] collective dialogues” (p. 209) or relationships. Again, the TinyKittens online community includes a variety of different people from different countries, backgrounds, and cultures. And the members of the TinyKittens online community spend time each day sharing knowledge, providing entertainment, and interacting with each other.

Regardless of where the definition for a virtual community comes from, they all have aspects in common. First and foremost, a virtual community is, at least partly, online or virtual. Second, it consists of multiple individuals who usually did not know each other. Third, it is created and maintained based on some sort of common interest. Fourth, it always involves some sort of communication and interaction. Fifth, all members have the ability to create and share content (although not all do). And sixth, in some cases there are rules or norms that guide the members as to what they can and cannot do or say. Unlike the definition of community, the definition of a virtual community appears to have consensus amongst researchers and that definition has remained remarkably consistent over the last several decades. In fact, Rheingold’s 1993 definition could still be used successfully in a modern study, even though some of the terminology is outdated. (Who says “The Net” anymore?!)

3.5.3 Advantages and Disadvantages of a Virtual Community

Health-related studies have researched the benefits of social connections on humans. In general, “[r]esearch on the relationship between social connections and physiological health” has shown that there is a “positive association between social support and cardiovascular, endocrine, neuroendocrine, and immune system functioning” (Moore, 2018, p. 172). Research in social psychology also found that “humans have an innate need to belong and be affiliated with others, which is a primary motivation in joining both online and offline communities” (Akoumianakis, 2011, p. 36). Those communities, or social groups, provide members with the type of support that may prevent them from engaging in harmful behaviours (Moore, 2018,

p. 173). It has already been shown that virtual communities can be considered social connections, therefore, the physiological and psychological benefits of social connections could likely be extended to virtual communities. This is a belief shared by other researchers, as virtual communities “increasingly act as developmental conduits through which individuals can seek, discover, and form social ties with others” (Moore, 2018, p. 176).

It is not a coincidence that several of the virtual community definitions include socio-emotional aspects. Rheingold’s (1993) definition includes “with sufficient human feeling” (n.p.) and Burnett’s (2000) definition includes “socio-emotional support” (n.p.). Burnett (2000) also outlines different beneficial collaborative behaviours that can be found in virtual communities, including: empathetic behaviours or emotional support and information-related behaviours. Some virtual communities have even been created specifically to provide emotional support to a particular group (e.g., cancer patients) (Burnett, 2000).

As Burnett (2000) pointed out, the benefits of virtual communities do not have to be entirely psychological or physiological. The ability of a potential member to locate a community who shares her interests means she has located a community from which she can obtain useful information (Burnett, 2000). Virtual community members can benefit from both proactively pursued information and passively obtained (i.e., serendipitous) information. From a proactive perspective, it is not unusual for members of a virtual community to post questions, which implies they believe other community members can be both helpful and trustworthy (Burnett, 2000). From a passive perspective, the posting of announcements, questions, and answers can be helpful to members who do not actively participate (i.e., lurkers), who may have a similar issue (Burnett, 2000; Bender, 2018).

Virtual communities are viewed as similar to, or even an extension of, offline communities. Like offline communities, virtual communities can help members with “problem-solving, information-sharing, expression of feelings, catharsis, and mutual support and empathy” (Burnett & Buerkle, 2004, n.p.). In fact, “an increasing number of people find it easier and more convenient to have their needs met through participation” (Burnett & Buerkle, 2004, n.p.) in a virtual community, especially when an offline community is not providing the help they need. Virtual communities have the “ability to link members of small groups across great distances, to expose

members...to the perspectives of many other small worlds and to allow...small worlds a forum to articulate their own opinions” (Burnett & Jaeger, 2008, n.p.). These far-reaching connections allow virtual community members to gather information, perspectives, ideas, and opinions from a wider variety of sources than an offline community.

As already mentioned, participation in social connections is beneficial physiologically and psychologically. This is especially important in situations where individuals have mental health concerns but do not have easy access to professional help; where there is a lack of connection with family and friends due to the stigma of mental health; or where individuals are isolated due to their age and/or health (Heyes, 2018). Virtual communities fill a gap that can help address issues because “[u]sing a virtual platform...does not feel as constricted as face-to-face contact [and] may enable vulnerable people to explore support systems that they may feel unable to access in the ‘real’ (offline) world” (Heyes, 2018, p. 34). In addition to the benefits already mentioned, virtual communities can also provide members with a sense of relief knowing there are others *out there* who are having similar experiences (Heyes, 2018). And, for members who may not feel comfortable sharing their own personal stories and information, being able to help others provides those members with “personal gratification” (i.e., altruism) (Heyes, 2018, p. 40). This gratification or altruistic behaviour can help virtual community members who are ill from thinking about, focusing on, or stressing out about their own illness or situation (Bender, 2018). There is an excellent summary of the many benefits virtual communities provide to cancer patients that can likely be applied to many virtual communities, especially communities related to physical or mental health. Those benefits include, “reduc[ed] feelings of isolation; validat[ed] concerns; alleviat[ed] fears;...reassurance and hope for the future; [and] enhanc[ed] coping and self-management” which can lead to “better-informed and prepared...patients who may use healthcare resources more optimally” (Bender, 2018, p. 81).

Unfortunately, not everything about virtual communities is positive. It is possible that individuals who have difficulties with in-person relationships will also experience the same problems with virtual relationships (Heyes, 2018). Members of a virtual community require trust when it comes to information exchange, therefore, if a virtual community were to lose the trust of its members, it (and its members) may

suffer (Heyes, 2018). In addition, not all virtual communities work for all people. Members need to feel that they *fit into* a virtual community in order to benefit from it (Bender, 2018; Heyes, 2018). Finally, the hostile interactive behaviours Burnett (2000) mentioned cannot be forgotten. These hostile behaviours include flaming (arguments meant as insults), trolling (specifically posting messages to elicit an angry response), spamming (overwhelming the group with useless information), and cyber-rape, which appears to be equivalent to cyber-bullying, where members make “unsolicited, unwelcome...and violently assaultive” comments (Burnett, 2000, n.p.).

There are also other factors to consider when it comes to an individual’s ability to participate in a virtual community. According to worldometers.info and internetlivestats.com, only 54% of the world’s population has access to the internet, which means that a large part of our world is still not online. Individuals with literacy issues, including learning disabilities, or those who are simply scared (possibly due to a lack of anonymity), may not be able to participate in virtual communities (Heyes, 2018), even if they do have access to the internet. Socio-economic status can also play a part in virtual community participation. The lack of an income, or a high enough income, may prevent some individuals from purchasing the required technology to go online. Rural and more isolated communities are also notorious for having less than exceptional internet speeds, which can frustrate potential participants and prevent them from looking for a virtual community.¹¹

3.5.4 The Connection Between Information Worlds and Virtual Communities

The theory of information worlds was influenced by Chatman’s theory of normative behaviour. And the theory of normative behaviour was used by Burnett, Besant, and Chatman (2001) to review the small worlds and information behaviour of virtual communities. It would therefore not be a stretch to assume that the theory of information worlds could also be successfully applied to virtual communities. If that assumption is not sufficient enough to show the relationship between the theory and

11. As a note, I live in Trent Lakes, Ontario, which is about two hours from Toronto (i.e., not that far). Our house has Bell high-speed internet with a maximum speed of 25 mbps. We only get that speed because we are close to a junction box. The further you are from a junction box, the slower your internet speed. And, we are not likely to get fibre optics anytime soon, even though cities less than an hour away from us already have it.

virtual communities, Jaeger and Burnett (2010) dedicate several sections of their book to the application of their theory to virtual communities.

3.6 Biophilia, the Human-Animal Bond, & Oxytocin

3.6.1 The Biophilia Hypothesis

The biophilia hypothesis was introduced by Wilson in his 1984 book *Biophilia: The human bond with other species*. Based on historical analysis, various evolutionary and biological concepts, and personal experiences, Wilson (1984) hypothesized that humans have “the urge to affiliate with other forms of life [which] is to some degree innate” (p. 85). Stephen Kellert (1993) expands this definition by explaining that the “biophilia hypothesis proclaims a human dependence on nature that extends far beyond the simple issues of material and physical sustenance to encompass the human craving for aesthetic, intellectual, cognitive, and even spiritual meaning and satisfaction” (p. 20). Wilson may have devised the modern meaning of biophilia, but he did not create the term. *Biophilia* was coined by Fromm in his 1964 book titled *The Heart of Man* and the concept (not the word) can be linked all the way back to Aristotle (Wikipedia, 19 Apr 2019).

An example of biophilia provided by Wilson (1984) is how humans tend to be drawn to locations that include “open tree-studded land on prominences overlooking water” (p. 110), which can be linked to the savanna on which humans first settled. As humans became urbanized, they looked for new ways to create this savanna-like environment for themselves, which led to the construction of green spaces, parks, and gardens (Wilson, 1984; Wikipedia, 19 Apr 2019). In addition, the *need* for humans to have pets grew stronger because pets provided them with comfort in their day-to-day lives (Wilson, 1984; Wikipedia, 19 Apr 2019). While humans have attempted to mimic natural items with artifacts, they are never as satisfying as the real thing (Wilson, 1984).

People react more quickly and fully to organisms than to machines. They will walk into nature, to explore, hunt, and garden, if given the chance. They prefer entities that are complicated, growing, and sufficiently unpredictable...[and they] treat their most formidable contraptions as living things or at least to adorn them with eagles, floral friezes, and other emblems

representative of the peculiar human perception of true life.

(Wilson, 1984, p. 116)

One does not have to look far to see how humans have incorporated nature-related icons into everyday life. “[T]he language of our own society is heavily saturated with zoological references, which suggests a greater influence of, and involvement and preoccupation with, animals that we are prone to recognize or admit” (Bryant, 2008, p. 9). Almost every aspect of human life is somehow linked to animals (Bryant, 2008; Olmert, 2009): animal stickers on the lid of a laptop; photos of animals as computer wallpaper; cute animals in advertising (e.g., Telus); cars named after animals (e.g., impala, bronco, cougar, jaguar, mustang, ram, thunderbird, viper, etc.); cartoons based on animal characters (e.g., Mickey Mouse, Bugs Bunny, etc.); stuffed animals and the teddy bear; and TV channels, shows, books, and movies (e.g., Animal Planet, the National Geographic channel, *A Dog’s Purpose*, *Lassie*, *Benji*, *Call of the Wild*, *Marley & Me*, *The Lion King*, *Babe*, *Madagascar*, *The Life of Pi*, *The Golden Compass*, *Free Willy*, *Ice Age*, and *Narnia*, to name only a few).

In the 1993 book *The Biophilia Hypothesis*, Ulrich wrote a chapter about the specific studies which established the truth of the biophilia hypothesis. All the studies he reviewed related to the *observation* of natural environments, not touching or interacting with natural environments (Ulrich, 1993). Part of the chapter also introduced the concept of *biophobia*, which is the opposite of *biophilia*. Biophobia is the innate fear of the interaction with other living things (Wilson, 1984; Ulrich, 1993). Ulrich (1993) finds support for the idea that “humans are biologically prepared to...not ‘forget’ adaptive biophobic...responses to certain natural stimuli and situations that...have presented survival-related risks throughout evolution” (p. 85). Wilson (1984) mentions the same concept in his book, as it specifically relates to humans’ innate fear of snakes. Ulrich looked at biophobia from the perspective that, if it exists, then the concept of biophilia must also exist (i.e., if humans have innate fears of natural things, they also likely have an innate need for natural things) (Ulrich, 1993). Ulrich (1993) found that some humans “respond positively to unthreatening natural settings” (p. 96), which can lead to “positive shifts in emotional states” (p. 113), “more complete and faster stress recovery” (p. 108), and it can “facilitate creativity and high-order cognitive functioning” (p. 113).

In the same book, Katcher and Wilkins (1993) wrote a chapter about research findings that the “same physiological changes [as Ulrich’s chapter] can be observed when people contemplate arrays of moving animals” (p. 175). Specifically, research has found that “watching an aquarium [can] result in significant decreases in blood pressure” (Katcher & Wilkins, 1993, p. 175). In fact, watching an aquarium was “as effective as hypnosis in relaxing subjects and hypnosis did not improve the effects of [watching the] aquarium” (Katcher & Wilkins, 1993, p. 176). Katcher and Wilkins (1993) also described studies that observed “focused attention, increase social responding, positive emotions, and...speech” (p. 180) in autistic children who had been in the same room with an animal (usually a dog). Studies have also found that having animals present, in general, “increases social interaction¹²” (Katcher & Wilkins, 1993, p. 180). Katcher and Wilkins (1993) conclude their chapter with the statement that “if biophilia exists, then it most probably exists as a disposition to attend to the form and motion of living things, and, for animals at least, incorporate them into the social environment” (p. 193).

Unfortunately, biophilia does not always have positive results. In the multiple definitions of biophilia listed above, all indicate an innate need for humans to interact with the natural, living environment (Wilson, 1984; Kellert, 1993), but they do not say that the interaction is always beneficial to that natural, living environment. As Kellert (1993) points out, “[e]ven the tendency to avoid, reject, and, at times, destroy elements of the natural world can be viewed as an extension of an innate need to relate...with the vast spectrum of life” (p. 42). Humans love nature so much that they try to store it away in zoos and aquariums so they can see and touch it more often. Humans love seeing amazing parts of the natural world so much (e.g., Antarctica, Mount Everest, etc.) that they travel there in the thousands and end up destroying the very beauty they have come to see. Humans love wild animals so much that they pay money to interact with (e.g., swimming with dolphins, photos with baby tigers, etc.), and subsequently cause the suffering of, those wild animals. Kellert (1993) refers to this as a naturalistic tendency, which “encompasses a sense of fascination, wonder,

12. I can personally attest to this finding. Whenever I had my cat Pippin with me in public, I would always be approached by at least one person. In fact, one year, while walking through the town of Jasper with Pippin (who was on a leash), I was stopped three times in a couple of blocks by people who wanted to meet Pippin. One person even wanted to take her photo. Whenever I walked through Jasper on my own, no one ever stopped me to have a conversation!

and awe derived from an intimate experience of nature's diversity and complexity" (p. 45).

It is also interesting to consider that if we, as humans, are so drawn to the natural environment, why have we done such a great job of destroying it? And when we have figured out the damage we have done, why is it so hard for us to change our ways? Unfortunately, this is Kellert's (1993) dominionistic tendency, which "reflects the desire to master the natural world" and is "associated with destructive tendencies, profligate waste, and despoliation of the nature world" (p. 56). It is also related to the human tendency to want to attach an economic value to everything, including aspects of nature (Wilson, 1993; Kellert, 1993). If something has value, it can be bought, sold, and traded; when it no longer has value, it can be thrown out (Wilson, 1993). This need to conquer and control nature has led to its demise. Wilson stated in 1993 that "20 percent or more of the earth's species will disappear or be consigned to early extinction during the next thirty years" (p. 36). Thirty years from 1993 is 2023! Unfortunately, many humans currently see no value in the continued conservation of the Earth's biodiversity, which is ironic because "[n]ature's diversity and healthy functioning are worthy of maintenance because they represent the best chance for people to experience a satisfying and meaningful existence" (Kellert, 1993, p. 60).

3.6.2 The Human-Animal Bond

The term *human-animal bond*, which was coined sometime in the 1970s, refers to the "relationships resulting from human-animal interactions" (Anderson, 2008, p. 18). According to the American Veterinary Medical Association (2019), the human-animal bond is,

[A] mutually beneficial and dynamic relationship between people and animals that is influenced by behaviours essential to the health and wellbeing of both. This includes, among other things, emotional, psychological, and physical interactions of people, animals, and the environment. (n.p.)

In this definition, it is important to note that *emotional* and *psychological* interactions between humans and animals are included, not just physical ones.

The Center for the Human-Animal Bond at Purdue University (2019) defines the human-animal bond as “the dynamic relationship between people and animals in that each influences the psychological and physiological state of the other” (n.p.). The Centre (2019) goes further and adds that “[t]he therapeutic value of animals for socially isolated individuals in nursing homes, hospitals, hospices, and prisons has been documented. People in the presence of animals are often perceived to be more happy and healthy” (n.p.). While the Centre’s definition of the human-animal bond mentions that the animal is present, it does not specify the method of that presence. For example, an animal could be physically located in the same place as the human, but it can also be present in their thoughts or mind.

While the term human-animal bond is somewhat new, the concept is not. From a historical perspective, hunters and gatherers had a special bond with their environment and the animals within it (Irvine, 2008). This bond, which is also the basis for the biophilia hypothesis, resulted because of the need for ancient humans to always be aware of their surroundings (Wilson, 1984; Irvine, 2008). These same humans also held a very different view of animals than humans do today. “Early humans...made no effort to distinguish themselves from or set themselves above nature” (Irvine, 2008, p. 117). This view changed as civilization grew. Animals became “inferior to human” which was the result of the “product of the power humans exerted and wished to maintain over other creatures” (Irvine, 2008, p. 117).

The way in which humans have viewed animals has changed over time, but the view that animals could be beneficial to humans (in a way other than as food) was never lost. For example, not only did Ancient Egyptians associate gods with cats, they thought dogs had healing properties (Coren, 2015). In the late 17th century, Locke was the first to suggest that “small pet animals [might] aid in the social development of children” (Coren, 2015, p. xix). In the 19th century, Florence Nightingale suggested that “small pets relieved depression” in patients with chronic conditions (Coren, 2015, p. xix). In World War II, Dr. Charles Mayo (yes, that Mayo) had a dog with him on his rounds in a hospital in the Philippines to act as a “living antidepressant” for the patients (Coren, 2015, p. xix). Yet, it was not until the 1960s that Levinson, a child psychologist, introduced animals as a formal part of therapy (Coren, 2015). Levinson, who is thought to be the founder of the animal-assisted therapy movement, often

brought his dog Jingles to his office. He noticed Jingles was present his sessions with children were much more productive (Coren, 2015).

Once Levinson determined that Jingles was a valuable asset to his therapy sessions, he wrote and presented that animals might play a role in the positive emotional states of humans (Coren, 2015). Unfortunately, his colleagues laughed at him. By an odd coincidence, around the same time Levinson was trying to convince his colleagues that animals were beneficial in therapy sessions, writings from Freud were being published in which he specifically mentioned the benefits of having his own dog, Jofi, in therapy sessions (Coren, 2015). Freud had initially brought Jofi to the therapy sessions as a calming effect for *him*, not his patients (Coren, 2015). But, like Levinson, Freud discovered that Jofi benefitted the patients as well (Coren, 2015). On his own, Levinson did not have the credibility to convince the psychological community that animals were beneficial to therapy, but Freud sure did! The combination of Freud's newly published writings and the release of Levinson's book *Pet-Oriented Child Psychotherapy* allowed the psychological community to change its views on animals and their impact on human emotional states (Coren, 2015).

3.6.3 The Importance of the Human-Animal Bond

The human-animal bond is important because of the effects it has on both the humans and non-humans involved. (This section will focus on the benefits for humans, the last section will focus on the benefits to non-humans.) As mentioned in the previous section, these effects can be both physiological and psychological.

Companion animals can elicit positive emotions and may allow humans to experience a sense of safety, which in turn improves the capacity to regulate both emotional and physiological states.

This improved regulation is manifest in better mental and physical health and is often observed as a greater resilience to stressors.

(Carter & Porges, 2016, p. 90)

Physiologically, studies have shown that "pet owners were...more likely to be alive one year after discharge from a coronary care unit than non-owners" (Friedmann et al., 2000, p. 125). Other studies have shown that "both pet ownership and amount of social support tended to predict one-year survival" (Friedmann et al., 2000, p. 126) rates of humans who suffered a heart attack. "[R]isk factors for coronary heart disease

were significantly greater among...non-pet owners than among...pet owners” (Friedmann et al., 2000, p. 127). And, humans who adopted pets were found to have much less minor health issues in the one month after they adopted their pet (Friedmann et al., 2000). These physiological effects do not necessarily require an animal to be physically touched. Studies have also found “decreases in blood pressures of...participants in response to watching an aquarium with fish” (Friedmann, et al., 2000, p. 130). A great summary as to the effects of the human-animal bond on physical health is as follows:

Several epidemiological studies indicate that pet ownership is associated with better health status...A number of experimental and quasi-experimental studies confirm that three categories of human-animal association provide physiological benefits to individuals: people explicitly looking at or observing animals or pictures of animals...; people being in the presence of animals but not interacting with them...; and people touching or interacting with animals. (Friedmann et al., 2000, p. 137)

Psychologically, non-human animals provide humans with social connections and social interactions. One way non-human animals do this is by being a *social lubricant*, which means that the non-human animal encourages social connections between humans (Serpell, 2000; Rowan & Beck, 2008; Ling, Kelly, & Diamond, 2016). Another way non-human animals do this is by providing humans with self-esteem, confidence, and a sense of worth (Harker, Collis, & McNicholas, 2000; Rowan & Beck, 2008; Serpell, 2015). The great thing about non-human animals is that they do not judge, they are “indifferent to their human companions’ material possessions, status, well-being, and social skills” (Fine & Beck, 2015, p. 7). Human/non-human relationships tend to be “more constant and reliable than human-human relationships” (Harker et al., 2000, p. 192). The human-animal bond can also provide humans with a reason for living due to the strong attachment humans have with their pets, which is also related to reduced feelings of loneliness and depression (Harker et al., 2000; Rowan & Beck, 2008). In general,

a pet can be a miracle drug that keeps you healthier; home instead of hospitalized; reduces your risk of heart attacks; and keeps you healthier with a lick of a tongue, wag of a tail, or rhythmic purring. All of these benefits are available, not during doctors’

hours, but around the clock. And not for a fortune, but at the price of a can of Fancy Feast or Friskies. (Becker, 2002, p. 64)

While the human-animal bond is great for many humans (and non-humans), it is not great for all humans (and non-humans) (Beck & Katcher, 2008). Humans with a (bio)phobia of certain animals due to past experiences may feel increased stress and heightened vital signs at the sight of that animal. For example, my grandmother was bitten by a cat as a child. Whenever one of my cats was in her presence, she was nervous. Other humans, possibly those who have grown up exclusively in an urban environment, may not have the same positive view of farm or wild animals as someone who grew up in a rural environment. The small world that is our families can influence our view of non-human animals. If parents (or adults in general) do not have a favourable view of pets, children may come to believe pets are not useful or worth the expense. Thankfully, some humans are able to overcome their phobias of certain animals or can find other animals that comfort them.

3.6.4 Oxytocin

Up until this point in Section 3.6, the concepts discussed are related to theories that are somewhat philosophical and difficult to prove. However, there is a biological basis for how concepts like biophilia and the human-animal bond work and why they provide positive benefits to both humans and non-humans alike. That biological basis is *oxytocin*.

Oxytocin is a “peptide hormone that is released into the brain and circulatory system from the hypothalamus by sensory stimulation” (Beetz & Bales, 2016, p. 110). Physiologically, oxytocin has the ability to reduce stress, anxiety, depression, cortisol levels, and blood pressure (Beetz & Bales, 2016). Oxytocin, and its partner vasopressin, are both part of the parasympathetic nervous system (Unväs Moberg, 2003; Beetz & Bales, 2016; Carter & Porges, 2016). The sympathetic nervous system, which is the opposite of the parasympathetic nervous system, is responsible for the flight or fight (or freeze) response (Unväs Moberg, 2003; Carter & Porges, 2016). The parasympathetic nervous system, with the help of oxytocin, is responsible for comforting, connective, and nurturing behaviours (Unväs Moberg, 2003; Freund, 2016).

Awesomely, “social support and positive social interactions can protect and heal” (Carter & Porges, 2016, p. 89) humans and non-humans. And “[i]ndividuals who have a perceived sense of social support are more resilient in the face of stressors and disease, living longer than those who feel isolated or lonely” (Carter & Porges, 2016). It is important to highlight the fact that the previous quote uses the word *perceived*. Each and every individual is, obviously, different. And how they feel or react to certain things will also differ. But the neurobiological responses to inputs does not depend upon some universal definition of how each input *should* make an individual feel, it depends upon how each individual *perceives* that input. Therefore, if an individual *perceives* that their relationship with their non-human animal provides them with social support and connectedness, oxytocin will activate their parasympathetic nervous system and they will feel relaxed.

3.6.5 Biophilia, the Human-Animal Bond, and Oxytocin Applied to Online Activity

Studies have found that “simply watching an animal can lower a person’s blood pressure” (Hart, 2018, n.p.). They have also found that the cognitive presence of a pet can have similar benefits as the physical presence of a pet (Zilcha-Mano et al., 2012). Studies have even found that “watching nature films lowers our adrenalin and noradrenalin levels” (Olmert, 2009, p. 230) and that “viewing pictures of ‘cute’ puppies and kittens temporarily enhances people’s fine-motor dexterity” (Bradshaw, 2013, p. 189). In fact, the “evocative visual characteristics of companion animals can elicit emotional feelings in most healthy humans” (Carter & Porges, 2016, p. 93). While the way (and ability) we have to watch animals has changed over time, the “desire to view them, and the way we feel when we do, appears to be remarkably conserved” (Olmert, 2009, p. 231).

As it relates to oxytocin, “[p]hysiological indicators of parasympathetic nervous system arousal indicate that looking at or observing domestic animals is associated with relaxation” (Friedmann et al., 2015, p. 79). This has been shown to happen in studies involving both aquariums and chimpanzees, which seems to imply that the constant motion of the animals being watched draws a human’s attention and keeps it there (Friedmann et al., 2015). Studies have also shown that when a human

performs a stressful activity after watching an animal video, both blood pressure and heart rate decrease (when compared to humans who did not watch an animal video) (Friedmann, et al., 2015). Even anecdotal evidence from qualitative studies have shown that watching cat videos online can reduce stress and increase productivity in humans (Myrick, 2015). Therefore, it is not necessary to be in the presence of an animal in order to feel the benefits of the human-animal bond (Olmert, 2009; Bradshaw, 2013; Friedmann et al., 2015).

3.6.6 The Benefits of Biophilia, the Human-Animal Bond, and Oxytocin for Non-Humans

This section, so far, has focused on how biophilia, the human-animal bond, and oxytocin are beneficial to humans. But it is important to note the benefits do not stop there. Oxytocin is a chemical found in all mammals, including cats, dogs, rabbits, mice, horses, giraffes, elephants, etc. (Uvnäs Moberg, 2003; Olmert, 2009; Carter & Porges, 2016). And oxytocin has the same general effects on non-human animals as it has on humans—calmness, connectedness, mothering, lactation, etc. (Uvnäs Moberg, 2003; Olmert, 2009; Carter & Porges, 2016). For example, when a human rides a horse, “the weight, warmth, and rocking movement of the rider massages nerves along the back and withers that can release oxytocin” (Olmert, 2009, p. 97). Many oxytocin-related research projects used mice or voles instead of humans in their experiments. The findings of these oxytocin studies on mice and voles are then extrapolated and applied to humans because of the similar ways in which human and mouse nervous systems work (Uvnäs Moberg, 2003; Beetz & Bales, 2016). While oxytocin may not increase in non-human animals in all the same ways as it does in humans (e.g., watching a nature documentary might not increase oxytocin levels in mice!), there are many similar ways oxytocin can be increased in both non-humans and humans (e.g., birth, lactation, touch).

While the benefits of oxytocin can be applied to both humans and non-humans, the benefits of biophilia can only be applied to humans. The biophilia hypothesis is based on an innate *human* need, not an innate animal need. Many would even argue that non-human animals would probably be better off without humans, while humans could not survive without non-human animals. In fact, biophilia in general (as mentioned earlier) can be detrimental to non-human animals. The good news is

that the human-animal bond can be beneficial to both humans and non-humans (Anderson, 2008; Olmert, 2009; Freund, McCune, Esposito, Gee, & McCardle, 2016; AVMA, 2019; The Centre, 2019).

Consider, for example, the way in which a dog behaves when its human is around versus the way it behaves when its human is gone. Some dogs experience stress and anxiety when their humans are not around, say, for example, when they go to work during the day, or go on a vacation or business trip. But when their human comes home, most dogs appear to experience intense happiness and elation. (Search YouTube for videos of dogs whose humans have come home from military deployment for some good examples. Or, just search YouTube for videos of dogs whose humans have come home from work for other good examples!)

Ironically, the reaction of dogs to their human is one of the benefits of the human-animal bond *for humans*, as it makes the human feel loved and wanted (Olmert, 2009; Fine & Beck, 2015; Ling, Kelly, & Diamond, 2016). Humans, unfortunately, almost never express feelings the same way dogs do. A human might react the same way as a dog if a parent or child comes home from a military deployment, but how often do you see your spouse or child greet you with utter joy and elation when you come home from work? Even if there is no way to prove that a dog loves its human, the mere fact that the human *perceives* she is loved is what counts (Olmert, 2009; Fine & Beck, 2015; Ling, Kelly, & Diamond, 2016).

Many non-human animals enjoy being stroked and cuddled (except maybe some cats, who only like it on their specific schedule). Stroking and cuddling with a non-human animal—in other words, touching it—generates oxytocin in that non-human animal, which in turn can calm the non-human down and make them feel content (Uvnäs Moberg, 2003; Olmert, 2009; Beetz & Bales, 2016). Many non-human animals also calm down, relax, and even fall asleep after they have had a meal, the same as humans, which is also a positive effect of oxytocin.

If we take oxytocin (i.e., biology) out of the equation, there are still many ways in which a non-human animal benefits from the human-animal bond. A non-human benefits from by being fed, by being vaccinated, by receiving medical care, by being protected from danger (e.g., cars, wild animals, not very nice humans, hunting and poaching, extinction, etc.), and more. And these benefits apply to non-human animals who are part of a human family and those who are not. Animals taken in by shelters,

rescues, and conservation organizations; cat colonies taken care of through a TNR program; and even zoo animals, can receive these benefits. (It could also be argued that wild animals only need to be protected from danger *because of* humans.) The more humans experience biophilia and the human-animal bond (even remotely), the more likely they are to help protect non-human animals. This protection could include adopting non-human animals as pets, volunteering at an animal-related organization, donating money to an animal-related organization, spreading accurate information and educating humans about non-human animals, advocating for changes to laws associated with animal issues, opting to pursue an animal-related education and career, or conducting research on non-human animal topics. It is important to note that the connection a human feels towards non-human animals, even from a distance, can benefit those non-human animals. Many humans support organizations like the World Wildlife Fund or Sea Shepard because they feel an innate need to help all types of non-human animal species, even those they are likely to never see in person.

3.7 Chapter Conclusion

Information is “the sum total of the content—facts, knowledge, feeling, opinion, symbols, and context—conveyed through communication between individuals or groups through any physical or virtual medium” (Jaeger & Burnett, 2010, p. 14). In other words, information is more than just facts and the associated knowledge behind those facts, it is the way you feel about something, it is what you think about something, it is the way in which you talk and communicate about something, and it is the way in which all of the above fit together in your world. Information is everything. And it is everywhere. TinyKittens is no exception. The TinyKittens online community has a constant flow and exchange of information. TinyKittens online community members convey facts and knowledge, but they also share feelings, thoughts, and ideas. This communication happens using the symbols of the world in which TinyKittens exists. Sometimes those symbols are nothing but text. Other times those symbols include photos, videos, GIFs, stickers, emojis, and more. And finally, members of the TinyKittens online community communicate and interact based on not just the context in which TinyKittens exists, but also within the context in which each and every member exists—their life experiences, their culture, their education, their family, their

friends, their predilections, and their personalities. The TinyKittens online community only exists because the members make it exist. And the information only exists because the TinyKittens online community members need, seek, give, and use that information.

Over the course of her career, Chatman developed a number of information theories, including the theory of life in the round and the theory of normative behaviour. Her theory of normative behaviour went on to influence Jaeger and Burnett, who eventually developed the theory of information worlds. The theory of information worlds consists of five main concepts: social norms, social types, information value, information behaviour, and boundaries.

As an information world, the TinyKittens online community includes all five of these concepts. Depending on the specific small world in which TinyKittens online community members interact—official Facebook pages, unofficial Facebook pages, YouTube—the **social norms** may differ. Some of those norms, like the “Guide for Peaceful Coexistence” on the TinyKittens live video streams, are explicit. Other social norms, like much of the indigenous vocabulary used by TinyKittens members, is implicit and learned over time by observation. Some **social types** exist and are equal across all platforms, such as Shelly (founder, leader, kitten whisperer), others are specific to a platform, like the moderators on YouTube. These two social types are observable, but others, like lurkers, are not. **Information value** on the TinyKittens online community is based on the values, attitudes, and beliefs expressed by Shelly, as well as those shared by community members. And that information value (previously known as a worldview in Chatman’s theories) influences the way in which information is needed, sought, used, and shared on TinyKittens. **Information behaviour** in the TinyKittens online community is both consistent and ad-hoc. For example, Shelly regularly posts updates, videos, announcements, stories, photos, etc., on the official Facebook pages in order to inform, educate, and entertain. These posts are not consistent in terms of timing, but they are consistent in terms of tone and content. Some information behaviour on TinyKittens Unite is also consistent, like the fact that members often ask for advice and feedback. But other information behaviour is ad-hoc, like when a member sees an interesting article elsewhere that they believe might be of interest to other members. Finally, **boundaries** exist between the small worlds that make up the TinyKittens online community, as well as between the TinyKittens online community and other social worlds. The boundaries between TinyKittens small worlds are what I

would call *open*: information flows easily and is usually considered trustworthy. However, the boundaries between TinyKittens and other social worlds is more congested: some information may make it through, but other information may not.

The earliest recorded definition of a virtual community comes from Rheingold in 1987. To summarize, his definition of a virtual community included a group of people who exchange information in a computer-mediated environment (but maybe also in-person) who share some sort of common interest and who follow some form of protocol (Rheingold, 2008). Since 1987, virtual communities have been studied extensively, and yet, the definition has barely changed. The TinyKittens online community could easily fulfill the definition created in 1987, or any definition created since. TinyKittens consists of both an online and offline community with a wide variety of members who constantly exchange information, usually about their shared interest in cats. The online component of the community exchanges information via computer-mediated communication platforms like Facebook and YouTube. And, TinyKittens (both online and offline components) have specific protocols—or social norms—that are followed by (most) members.

While the definitions are not exactly the same, there are a lot of similarities between information worlds and virtual communities. I would argue that, in many cases, they are one and the same. Information worlds, however, has a more strict definition than virtual communities, which may cause some virtual communities to fall outside the definition of an information world. TinyKittens, however, is not one of them. The TinyKittens online community is definitely both an information world and a virtual community. And as an information world, it consists of multiple small worlds that make up the more intermediate-sized TinyKittens online community.

TinyKittens would not be anywhere near as popular if it were not for one thing—kittens. It is rare for the TinyKittens Society to *not* have at least one kitten in their care at any given moment. And if they have a kitten, you can be darn sure it will be on one of the live video streams. The best times are when TinyKittens has multiple kittens who can be found on multiple live video streams! It is not a coincidence that humans find pleasure in watching kittens do everything kittens do—sleep, twitch, nurse, fight, play, learn, experiment, escape, beg, be bathed, and more. Kittens are animals, animals are part of nature, and nature has an innate pull on humans. The biophilia hypothesis was developed by Wilson in 1984 (slightly before Rheingold developed the concept of a

virtual community). The biophilia hypothesis “proclaims a human dependence on nature” (Kellert, 1993, p. 20). A dependence that may be the reason for both our need for nature (e.g., parks, green spaces, gardens, pets, etc.) as well as our need to control and dominate nature (e.g., hunting, farming, clearing, building, etc.).

While fans of *The Fast and the Furious* may disagree, humans “react more quickly and fully to organisms than to machines” (Wilson, 1984, p. 116). (Maybe *The Fast and the Furious* fans consider cars to be living organisms?) Nature and animals are incorporated into the everyday lives of humans—advertisements, TV shows, movies, video games, clothing, and more. Even some of our cars are named after animals (although none from *The Fast and the Furious*, as far as I can remember). And when nature or animals are involved, humans can find themselves able to relax, reduce stress, reduce blood pressure, focus their attention, and experience positive emotions (Katcher & Wilkins, 1993; Ulrich, 1993). The kittens on TinyKittens are literally good for your health.

Biophilia can only take us so far. Another concept is needed to describe the ways in which humans develop relationships with certain animals. This is where the human-animal bond comes in. The human-animal bond is a “mutually beneficial and dynamic relationship between people and animals” (AVMA, 2018, n.p.). It most frequently develops between humans and their pets, but it can also develop between humans and animals they see infrequently (e.g., therapy animals) and animals they observe and watch (e.g., advertisements, videos, live streams, etc.). How many animal-lovers can say they have not cried and felt guilty after watching the humane society commercial with Sarah McLachlan’s *Angel* playing in the background? Advertisers are not using this method by accident. They know photos and videos of sad looking, injured, and scared animals will make humans crumble and feel the need to open their hearts and their wallets. Thankfully, photos and videos of happy, healthy, and funny animals—like TinyKittens—can also open our hearts and wallets, but in a more positive fashion.

The TinyKittens online community is an online information world that strives and survives because of the bond members feel towards the cats and kittens in TinyKittens’ care. As will be explained in a later chapter, the TinyKittens online community goes even one step further by providing the added benefit of a community-based (virtual) human-animal bond.

CHAPTER 4 METHODOLOGY

“Cats know how to obtain food without labour, shelter without confinement, and love without penalties.” W.L. George

4.1 Chapter Overview

In the first three chapters, I provided an overview of the *who*, *what* and *why* of this study. This chapter is dedicated to the *how*. *How* the scope was determined. *How* the sampling was decided. *How* ethics were considered. *How* the data was collected. And *how* the analysis was conducted.

Section 4.2 provides an overview of which portions of the TinyKittens online community that will be included in this study. Specifically, that posts and comments from the four official Facebook pages were collected for the six months between January and June 2018. And that posts and comments for TinyKittens Unite were collected in 2018, but without specific start and end dates. YouTube chat comments were also collected, but on an ad-hoc basis in 2018 based on the content being discussed.

Section 4.3 provides an overview of the sampling technique used to collect the data for this study, as well as the method used to determine which data would be analyzed. In order to include as much useful information as possible, without needing to analyze an overwhelming amount of data, all of the posts from the four official Facebook pages were analyzed. In addition, the first 1% of the comments from the four official Facebook pages were analyzed. Finally, all posts and comments collected from TinyKittens Unite were analyzed.

Section 4.4 provides a review of the research ethics requirements at the University of Alberta and how they do and do not apply to this study. Specifically, this section will outline why an ethics application was not required and how the data used in the study was anonymized to protect the identities of TinyKittens online community members.

Section 4.5 covers the data collection processes used on Facebook and YouTube. This section describes the software used for collection, including Netvizz, screen capture, and optical character recognition. It also describes the methods used to clean and format that data, as none of it was in analyzable format immediately after being collected.

Section 4.6 outlines the data analysis steps followed. This section includes an overview of how the codebook was developed, how that codebook was used to code

data in NVivo, and what descriptive statistics were calculated to provide a big picture view of the data. Finally, this section ends with a description of the thematic analysis conducted on the coded data.

One important thing to keep in mind is that there are no standards for *how* to conduct an analysis of social media data. The fact that there are no consistent methods is the only consistency between most social media studies.

4.2 Scope

Table 4 provides an outline of which TinyKittens official and unofficial social media accounts were considered in-scope and out-of-scope for this study. Data was collected using both manual and automated processes, the details of which will be explained later in this chapter. If an item is not listed in the table below or is outside the timeframe indicated, it is considered out-of-scope.

Table 4

TinyKittens' Social Media Accounts In and Out of Scope

Social Media Account	Data Collection Method	Timeframe	In- or Out-of-Scope
TinyKittens (FB)	Automated	Jan 1 - Jun 30, 2018	In-Scope
TinyTuxies	Automated	Jan 1 - Jun 30, 2018	In-Scope
TinyTapeworms	Automated	Jan 1 - Jun 30, 2018	In-Scope
Grandpa Mason	Automated	Jan 1 - Jun 30, 2018	In-Scope
TinyKittens Unite	Manual	Anytime in 2018	In-Scope
TinyKittens (YT)	Manual	Anytime in 2018	In-Scope
TinyKittens (LS)	Manual	Anytime in 2018	In-Scope
TinyKittens.com	N/A	N/A	Out-of-Scope
Personal FB Pages	N/A	N/A	Out-of-Scope

For the automated data collection method, it was not possible to remove any comments or reactions that I may have posted personally. This is because all identifying information had been anonymized by the Netvizz app. Therefore, I cannot tell which

comments may have been mine. A similar reason can be applied to reactions, where only the total number of reactions (by type) was displayed. Again, it is impossible for me to determine if one of those reactions may have been mine. For data collected manually, I did not select any posts I wrote. And, I was able to tell if I wrote a comment or made a reaction, which enabled me to remove that comment or reaction from the analysis.

4.3 Sampling

This study required a number of different data sampling techniques due to the four data sets included. Those data sets included one from the four official Facebook pages, one from TinyKittens Unite, one from the TinyKittens YouTube channel, and one from the TinyKittens Livestream channel. While similar methods were employed to collect data from Facebook, YouTube, and Livestream, how data was selected for collection varied.

If there was one consistent statement about sampling data for social media studies, it was that there is no consistent method for sampling data for social media studies! In fact, *the SAGE Handbook on Social Media Research Methods* states that “little general guidelines exist [for social media studies], [and] it is upon the individual researcher to figure out for him/herself how much data will be needed for answering a specific research question” (Mayr & Weller, 2017, p. 113). Chapter 34 in the same handbook provides examples of studies conducted using data from Instagram. Four such examples of Instagram sampling techniques were provided: 100 posts from four specific hashtags (or 400 posts in total), three specific Instagram accounts, 1,330 posts from a specific hashtag, and posts from eight specific Instagram (Laestadius, 2017). Another book, titled *Discourse and Identity on Facebook*, used posts from five specific Facebook accounts, which resulted in the analysis of 465 Facebook posts (Georgalou, 2017). The studies outlined in these two books provided little to no guidance on how to select the appropriate number of posts or comments to analyze in this study.

A review of journal articles that used Facebook, unfortunately, resulted in the same conclusion. Criswell and Canty (2014) included 182 Facebook posts in their study (although they did not indicate if this was a subset of a larger collection). Klastrup (2018) included 109 posts and 300,000 comments from Facebook in her study, however, only three of the 109 posts (or 2.75%) and 1,800 of the 300,000 comments (or 0.6%) were included in the analysis. Gonzales (2014) used 147 Facebook posts out of 3,649

interactions collected for her study (or 4%). And, Cheung, Chan, Wang, Li, and Tam (2017) used 111 Facebook posts from 40 users in their study. None of these Facebook studies provided details on *how* they selected the subset of posts or if they started with a larger data set. Other studies analyzed Facebook profiles rather than posts, anywhere from 63 profiles to 150 (Nosko, Wood, and Molema, 2010; Hum, Chamerlin, Hambright, Portwood, Schat, and Bevan, 2011; Zhao, 2014).

I therefore decided to use the advice from the *SAGE Handbook on Social Media Research Methods* and select for myself an appropriate number of Facebook posts and comments to analyze in order to effectively answer my research questions. And because the data collection methods differed between data sources, the sample number was also calculated differently. As a summary, to collect data for the official TinyKittens Facebook pages, I was able to utilize an application called Netvizz. But to collect data for TinyKittens Unite, YouTube, and Livestream, I had to manually take screenshots using screen capture software. Netvizz can only be used for public pages, which means TinyKittens Unite (as a closed group) cannot be accessed by the app. And while an API exists on YouTube for chat comments, it is only accessible to channel owners.

4.3.1 TinyKittens Facebook Pages

As I was able to use the Netvizz app to collect data from the four official TinyKittens Facebook pages, downloading data from these pages was fairly easy. As such, I could err on the side of caution and download more data than I needed. This meant I was able to download every single post and comment that occurred on all of these pages between January 1 and June 30, 2018. This resulted in a total of 243 posts and 71,920 comments (see Table 5).

I had the time and ability to code and analyze 243 posts, therefore I decided to include all of Shelly's posts in my thematic analysis. Shelly's posts, in my experience, were not repetitive and usually included a variety of topics depending on current at TinyKittens. Therefore, it also made sense to code and analyze all of Shelly's posts, as it would be sure to capture all major and minor events during the timeframe.

Unfortunately, it was not possible for me to manually code and analyze over 70,000 comments, therefore I needed to decide upon a sampling method for the comments. I knew that, at the very least, I wanted to analyze some comments from each of the 243 posts and that I only needed to code comments that included text (as

comments with only emojis, GIFs, photos, videos, or stickers could be analyzed en masse using an automated method). I estimated that I could effectively code and analyze around 1,000 comments. One-thousand comments was also a reasonable number for a qualitative analysis and for answering my research questions. Analyzing 1,000 comments out of 70,000+ total comments equates to 1.4%, therefore I decided to round that number to an even 1% and analyze the first 1% of the *text* comments. This allowed for a reasonable number of comments to analyze and answer my research questions and it provided a fairly easy method for selecting the specific comments.

Table 5 provides a list of the four official TinyKittens Facebook pages, how many posts and comments were downloaded from each page, how many of those comments included text, and finally, how many of those text comments were to be included in the thematic analysis. Technically, 1% of 71,920 is 719, whereas the number of sample comments noted in the table is 742. This discrepancy is based on an aspect of the Netvizz data that I did not notice immediately and will explain below.

Netvizz provides a summary file that includes the number of comments for each post (and a separate file with the actual comments). This summary file includes two columns for the comment count; one for total number of comments received and the other for total number of comments downloaded. When I calculated the 1% initially, I used the numbers from the first column only to realize later that I should have used the numbers from the second column. The difference between the columns is the number of comments *deleted* as of the day Netvizz was run. If no comments were deleted, the two columns would be the same. Since the number I calculated was higher than 1%, I decided not to recalculate.

Table 5

Breakdown of Posts and Comments by Official TinyKittens Facebook Page

Page	Total Posts	Total Comments	Comments with Text	Sample Comments	% of Comments In-Scope
TinyTapeworms	28	2,367	2,197	31	1.3%
TinyTuxies	22	2,115	2,067	25	1.2%

Page	Total Posts	Total Comments	Comments with Text	Sample Comments	% of Comments In-Scope
Grandpa Mason	62	19,172	17,797	195	1.0%
TinyKittens	131	48,266	44,739	491	1.0%
TOTAL	243	71,920	66,800	742	1.0%

Note: [1] The Total Comments column represents the total number of comments received for the 243 posts on these four Facebook pages, including comments that have been deleted. The actual number of comments available for download was less than the numbers in this column. [2] The Sample Comments column represents the actual number of comments coded and analyzed for this study, by Facebook page. These numbers have been rounded up to the next absolute number.

4.3.2 TinyKittens Unite Facebook Page

Due to recent changes in Facebook privacy policies, and the subsequent changes to their API, there is no automated method by which a user—even a user who is a member of a group—can obtain a list of posts and/or comments for a closed group. As such, the only way I could collect posts and comments from TinyKittens Unite was to manually use screen capture software to save those posts and comments as PDFs. This also meant that there was no way for me to know how many posts (or associated comments) existed on TinyKittens Unite for any time period. Even though Facebook has an advanced search function that includes filters for months and years, the search results are incomplete. For reasons I do not understand, Facebook’s search function only displays a subset of the total posts that meet the search criteria. Worse yet, I used the search function one day in an attempt to determine the total number of posts in one month, then I attempted the same search a few days later. The results were completely different! On my first attempt, Facebook displayed a list of around 90 posts per search month. On my second attempt, Facebook displayed a list of around 20-25 posts per search month.

Instead of using the 1% comment method here, I looked for and captured posts that were relevant to my study and then included all the comments for each of those posts in the analysis. In the end, I collected 71 posts from TinyKittens Unite with a total of 2,733 comments. All of these posts and comments were included in the thematic analysis.

4.3.3 YouTube and Livestream Chat Comments

Like TinyKittens Unite, chat comments from YouTube and Livestream were collected manually using screen capture software. And just like TinyKittens Unite, there was no way to determine the total number of chat comments posted for a specific time period. Also, due to the real-time interactive nature of the chats, not every chat comment had analytical value. For example, autocorrect often caused problems and some chat comments were simply spelling corrections of previous comments. And when *slow mode* was turned on by the moderators (YouTube only), chatters could only post a comment once every three minutes. This meant that those spelling corrections sometimes appeared dozens of comments *after* the misspelled word and did not make sense as part of the ongoing conversation.

While both YouTube and Livestream allow users to scroll backwards in time to view previous chat comments, users can only scroll back so far, maybe 10 minutes or so. This meant that if I did not capture the chat comments exactly when they were made, I may never see them again. While chat comments on YouTube are displayed with recorded videos, the live video streams were not recorded and displayed on YouTube in their entirety. Usually only important events were recorded and posted (e.g., births, TinySuitcases, etc.). Therefore, the chat comments available for recorded videos were limited.

Vitak (2017), in Chapter 37 of *The SAGE Handbook of Social Media Research Methods*, said that “[t]he best studies involve the triangulation of multiple data sources and methods” (p. 637). Therefore, I opted to use the data collected from YouTube and Livestream for data triangulation rather than in the thematic analysis. Because of this decision, I would regularly watch the live video streams and capture comments that were relevant to this study. Those comments would be turned into readable PDF files that could eventually be searched in NVivo, for triangulation purposes.

4.3.4 Selection Bias

The total population of the TinyKittens online community is unknown. It is unknown because some members read and watch the various social media interactions, but do not participate. For example, members do not need to have a Facebook account to read the posts and comments on the four official Facebook pages, nor do they need to have a YouTube account to watch the live video streams. Plus, it is not unusual for

Facebook and YouTube users to like or subscribe to something but not unlike or unsubscribe when they are no longer interested. Therefore, as explained earlier, the total number of followers and subscribers on the official TinyKittens accounts is not likely to be an accurate reflection of the current number of community members (see Figures 32 and 33).

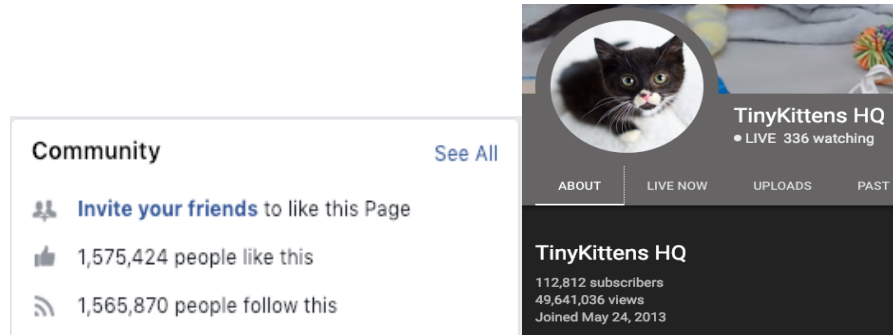


Figure 32 [left]: The number of Facebook users that have followed and liked the TinyKittens public Facebook page as of January 25, 2019.

Figure 33 [right]: The number of subscribers to the TinyKittens HQ YouTube channel and the number of views the videos on the channel have received, as of January 25, 2019.

One somewhat accurate number available is the number of views a Facebook or YouTube video has received.¹³ However, while that number may represent the number of times the video has been viewed, those numbers may count one individual multiple times if that individual watched the video more than once. And for live videos on both platforms, the number fluctuates as viewers come and go. A total number of live viewers is not displayed.¹⁴ (See Figures 34 and 35 for examples.)

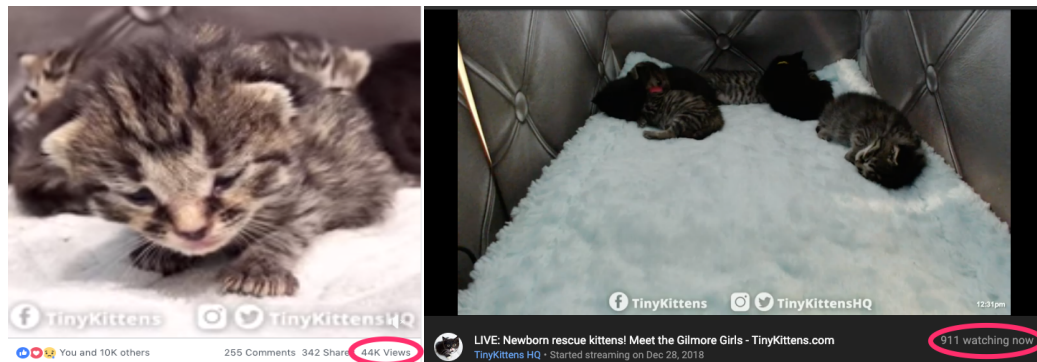


Figure 34 [left]: An example of how the number of views is displayed on Facebook.

Figure 35 [right]: An example of how the number of views is displayed on YouTube.

13. It is difficult to find exact information on what Facebook and YouTube count as a view. According to Marketing Land, a Facebook video needs to be watched for at least three seconds to count as a view and a YouTube video needs to be watched for at least 30 seconds to count as a view (<https://marketingland.com/whats-a-video-view-on-facebook-only-3-seconds-vs-30-at-youtube-128311>).

14. This number is not available to the general public, but is available to the YouTube channel owner.

For an academic study, the total number of TinyKittens online community members would be the *total population*. However, because that total population number is not known, the exact percentage of the *sample population* cannot be calculated. This inability to properly calculate population numbers could be considered a selection bias because only community members who actively interact on the social media accounts are included in the sample population. And only community members with accounts on Facebook, YouTube, and/or Livestream are able to interact. Community members who do not take an active, participatory role in the TinyKittens online community would not be included in any sample analyzed for this study.

I opted not to see this type of selection bias as a problem. The purpose of this study is to look at the impacts the TinyKittens online community has on its members. And due to this selection bias, only participatory members were included in the analysis and therefore the conclusions. That conclusion can outline what impacts *participation* in the TinyKittens online community has on *active* members, but it will only be able to *infer* what impacts the TinyKittens online community has on members who do not actively participate. The posts and comments from the participatory members are likely to represent the feelings of at least some of the non-participatory members. And, even if the conclusions made only apply to the participatory subset of members, those impacts are still vital to this study and important to those specific members.

4.4 Ethical Considerations

University of Alberta ethics policy states that an ethics review is not required when “non-intrusive research relying exclusively on publicly available information...when the information is...publicly accessible and there is no reasonable expectation of privacy” (REB, 2018). The official TinyKittens Facebook pages and the YouTube live video streams are all publicly accessible and fall under the above noted policy from the Research Ethics Office (REO). The TinyKittens Unite Facebook page and the Livestream VIP live video stream may not be considered public because both require membership. However, the last part of the above quoted policy indicates that an ethics review is not required if the information is “publicly accessible and there is no reasonable expectation of privacy” (REB, 2018). This section provides an outline of the detailed REO policy on

expectation of privacy and shows how TinyKittens Unite and Livestream fall into the category of data sources that do not require an ethics review.

The University's REO provides a number of factors to be considered when determining if there is a reasonable expectation of privacy. Those factors include,

1. Whether registration or subscription is required to access the data.
2. How many users have access to the data.
3. Whether anything is explicitly stated in the group's terms or FAQs regarding privacy or research.
4. Whether there are any cultural or religious aspects to the data or group. (REB, 2018)

Both TinyKittens Unite and the VIP live video stream require registration. For TinyKittens Unite, users must have a Facebook account and they must request and receive membership to the closed Facebook group. For the VIP live video stream, users must pay either \$14 per month or \$125 per year for access. Facebook accounts are free, therefore anyone who wishes to have one can sign up for one. Membership to the TinyKittens Unite Facebook page is obtained by clicking a button to make the request to administrators. In two test situations, I was able to easily and quickly obtain membership to the TinyKittens Unite closed group for two different Facebook accounts (one was a brand new Facebook account with no personal information or history and the other was my Mom's Facebook account). Both accounts received membership within 20 minutes of the request. Based on the ease of obtaining membership, it appears that while closed, TinyKittens Unite can be accessed by anyone with a Facebook account. Membership to the VIP live video stream requires both payment and access to a credit card or PayPal account. While there may be individuals who do not have access to either, in general, any member of the public who has these items can gain access to the VIP live video stream.

TinyKittens Unite has over six thousands members. And that number is regularly increasing. For the VIP live video stream, it is impossible to know how many users have access. Neither TinyKittens nor Livestream displays the number of users currently logged in or watching, nor do they display how many total users have paid for access. The only person who would know this information is Shelly, as owner of the account.

Neither TinyKittens Unite nor the VIP live video stream explicitly (or even implicitly) state anything about privacy, research, or the use of posted material. Figure 36 shows the “member guidelines” that are included on TinyKittens Unite. These guidelines mainly focus on respect, contests, fundraising, and sharing of outside information (TKU, 2019). The VIP live video stream does not have any terms, guidelines, or FAQs available.

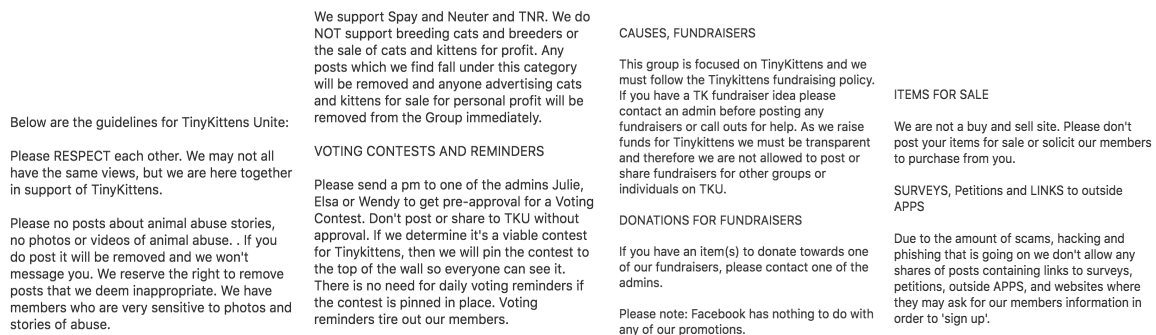


Figure 36: Terms of membership for the TinyKittens Unite closed Facebook group (TKU, 2019).

Neither TinyKittens Unite nor the VIP live video stream is associated with any cultural or religious groups or beliefs. In fact, most TinyKittens community members try to leave politics and religion out of any discussions they have. While both groups may discuss sensitive issues like mental health, physical disability, etc., these topics are frequently mentioned on the public pages.

Based on both the REO policies and the specific logistics for both TinyKittens Unite and the VIP live video stream, it is not unreasonable to conclude that individuals who are part of either of these groups should not expect privacy. As such, it is also reasonable to conclude that data collected from both groups can be considered public and therefore valid for inclusion in this study without an ethics application.

4.4.1 Unreasonable Expectations of Privacy

While the REO looks at expectation of privacy from an academic perspective, not all individuals with social media accounts look at their expectation of privacy in the same logical fashion. Many individuals have an unreasonable (or misinformed, misunderstood, incomplete) understanding of how social media works and who can and cannot see the information they post. A 2017 survey conducted by the Social Media Lab at Ryerson University found that 76% of respondents had their Facebook pages set as private, but 24% of respondents never check their privacy settings on

social media (with an additional 46% checking their privacy settings less than once a month) (Gruzd, Jacobson, Mai, & Dubois, 2018). These results raise the question as to whether those who claim their Facebook pages are private actually have the correct privacy settings. Interestingly, only 44% of respondents claimed to be uncomfortable with academic researchers using their social media data for research, which is the lowest level of discomfort amongst all potential third party data users (Gruzd et al., 2018).

In 2009, Facebook combined six pages related to privacy and 30 different privacy settings onto one page (AP, 2018). But these changes were only made on the web-based platform, the mobile app still has over 20 different locations where privacy settings can be found (AP, 2018). After the Cambridge Analytica scandal in 2018, Facebook implemented additional changes to their privacy settings in an attempt to make them easier to navigate (AP, 2018). Of course, Facebook claimed that this change was not because of the Cambridge Analytica scandal, but rather related to the new European privacy regulations at the time (AP, 2018).

Since the Cambridge Analytica scandal, and as a direct result of it, Facebook changed its policies with regards to app reviews and granting permission to access certain types of data via their API (Rieder, 2018). These changes have impacted both new and existing apps, including the one I used for this study—Netvizz. The creator, Bernard Rieder, attempted to obtain new permissions for Netvizz and was rejected, even though the app has been cited over 300 times in academic literature and is an important tool for researchers¹⁵ (Rieder, 2018). Unfortunately, Rieder (2018) has stated that “jumping through too many bureaucratic hoops over the last three years has made it clear how unsustainable my attempts to provide a tool like Netvizz have really been” (n.p.) and he has effectively given up maintaining the app.

Due to the unique nature of the events in 2018, I reached out to the REO to ask about this issue and determine if there was anything specific I needed to do for my study. Figure 37 shows the response I received from the REO and the confirmation that no, there was nothing I needed to do as existing policies had not changed. It is also important to note that the REO wrote they would never ask someone to complete

15. As of early 2019, Netvizz was still working. This means that, while Facebook has rejected its request for access, it has yet to disable the app's current functionalities.

an ethics application retroactively. Therefore, even if policies change in late 2018 or early 2019, an ethics application for this study would not be required.

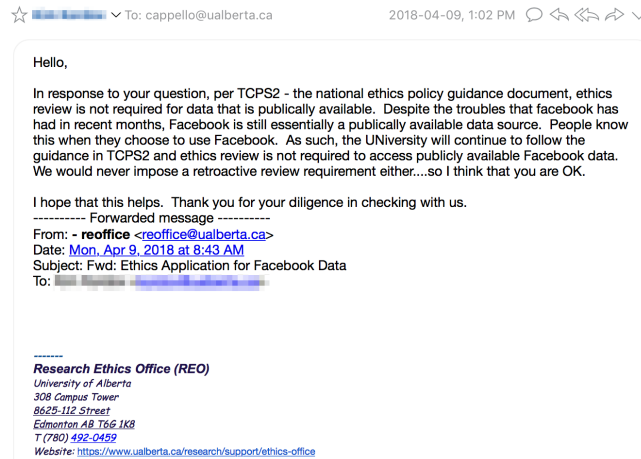


Figure 37: Email received from the REO regarding potential changes to publicly available social media data and ethics application requirements.

4.4.2 Anonymization of Data

Even though the majority of data being used for this study can be considered public, any data displayed in this thesis will be anonymized to protect the individuals who wrote or posted it. As such, the personal/account names and profile images of any poster or commenter will be obscured. Previous studies that have anonymized user and account names have discovered that the text of the posts or comments could be used in a Google search to find the user. For the official Facebook pages, these comments are already public and the name of the individual who wrote the comment is also already public. For TinyKittens Unite, the page is closed and comments on the page cannot be read (or searched) without membership to the page. For YouTube and Livestream, chat comments are not saved, therefore a search for any comments from either platform would not produce any (accurate) results.

With regards to the content of a post or comment, only posts or comments that include sensitive information have been altered for the purpose of this thesis. For example, in any post where a community member discussed mental issues or suicide, identifying information (e.g., names, location, dates, etc.) has been removed.

4.4.3 Age of Posters or Commenters

Due to the nature of the data set, it is impossible to accurately determine the age of the individuals who wrote the posts and comments. While the majority of posters and

commenters on Facebook and YouTube appear to use their real names, their accounts are either incomplete (i.e., do not contain enough personal information) or it is only an assumption that the person using the account is the owner of the account. Due to the manual work required, it would have been very difficult and time consuming to search Facebook and YouTube for every account that may have been included in the analysis. Therefore, I cannot guarantee that all community members studied and quoted in this thesis are 18 or older.

4.5 Data Collection

As outlined in Section 4.3, multiple data collection methods were used to gather data from Facebook, YouTube, and Livestream. This section outlines, in detail, what those data collection methods were, how they functioned, and what the collected data looked like.

All data collection methods used for this study involved unobtrusive or external observation, which “allows researchers to collect data without asking questions, making posts or otherwise involving themselves in interactions with the online community, group, social media or social networking site” (Salmons, 2017, p. 189). In other words, all data collected for this study was done without the involvement of participants. Because TinyKittens online community members did not actively participate in the collection of this data, I believe the results will provide a more accurate understanding of thoughts, feelings, and behaviours. “[R]esearchers have questioned the reliability of self-reported behavioural data” (Vitak, 2017, p. 632) because participants are not always truthful or accurate when it comes to recalling what they did, why they did it, and when they did it (Amichai-Hamburger & Vinitzky, 2010; Wu et al., 2016).

In the past, qualitative research projects on behaviour have gathered data using surveys or focus groups. But “[s]urveys will typically only provide *perceptions of use*...and are therefore limited in their ability to draw conclusions about actual use” (Vitak, 2017, p. 637). Surveys have been known to have other limitations, such as: demographics of participants (i.e., people who like cats are more likely to complete a cat-related survey), time requirements for researchers (i.e., they have to create and test the survey, leave it open for a set time period, etc.), and difficulty and expense to include a large sample size (Amichai-Hamburger & Vinitzky, 2010; Wu et al., 2016). As

such, I determined that unobtrusive observation was the best method for collecting data for this study.

This unobtrusive observation can include collecting data via automated methods like APIs (Davalos, Merchant, Rose, Lessley, & Teredesai, 2015; Ortigosa, Carro, & Quiroga, 2014; Wu et al., 2016) or via manual methods like copy and paste (Criswell & Canty, 2014; Podhovnik, 2016; Thoren, Metze, Bühner, & Garten, 2013). In this study a combination of both approaches was used due to the limitations of the APIs available on Facebook, YouTube, and Livestream. Section 4.5.1 outlines the manual method used in this study—a screenshot browser extension. Section 4.5.2 outlines how the screenshots were converted to readable PDFs. Section 4.5.3 outlines the automated method used in this study—Netvizz. And Section 4.5.4 outlines how the various data sets were reviewed, cleaned, and formatted for analysis.

4.5.1 Screenshots

4.5.1.1 FireShot Lite

Unfortunately, Netvizz could not be used to download data from TinyKittens Unite. Instead, I used a Chrome extension called FireShot Lite (<https://getfireshot.com/>) to capture specific posts and comments for analysis. FireShot Lite is able to capture all or part of a specific webpage, based on what the user selects.

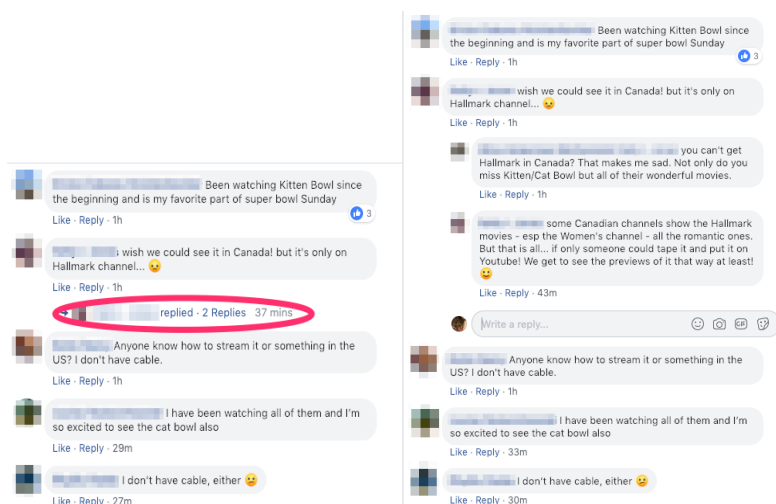


Figure 38 [left]: List of comments for a TinyKittens Unite post *before* they have been expanded.

Figure 39 [right]: List of comments for a TinyKittens Unite post *after* they have been expanded.

Once I found a specific post to capture, I first read through the post and made sure the entire post and all comments were visible (see Figures 38 and 39). Then, I

clicked on the FireShot Lite browser extension button and selected the 'Capture entire page' option from the drop-down menu (see Figure 40).

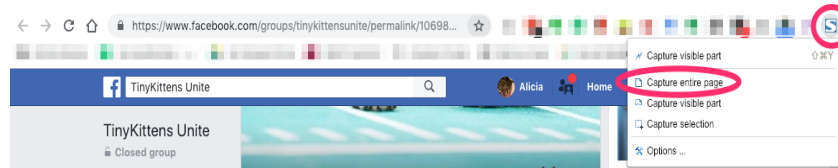


Figure 40: The FireShot Lite browser extension in Chrome.

Once FireShot Lite completed its capture, a new browser tab was displayed that provided options for downloading the image (see Figure 41). Even though there is a PDF option, FireShot Lite does not download *readable* PDF files, therefore, I downloaded all FireShot Lite screen captures as image files (.png).

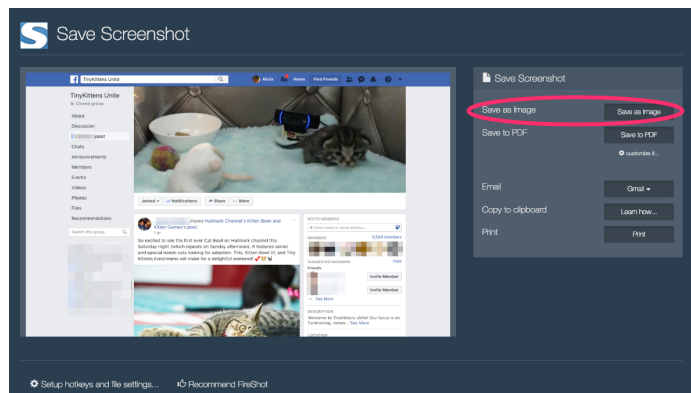


Figure 41: The FireShot Lite 'save screenshot' page.

4.5.1.2 Manual Screen Prints

While FireShot Lite is awesome, I was only able to use it on my MacBook or iMac. When I was watching one of the live video streams on my iPhone or iPad, I used the iOS screen capture function instead. When this function is used, the entire screen is captured in an image format and automatically saved to the device's photo stream. A similar screen print method is available on the macOS platform (Shift-Ctrl-Command-4), which I used occasionally, but found to be cumbersome when trying to capture more than one screen.¹⁶

4.5.2 OCR Software

In order to conduct my analysis in NVivo, I needed to convert the image files into *readable* PDF files. Readable PDF files would allow me to code and search the text

16. It was rare for a TinyKittens Unite post, with all comments, to fit on one screen.

within an image. Converting image files to readable PDF files was done using FineReader (v12.1.11). FineReader uses optical character recognition (OCR) to convert the text in an image to text that the computer can read. FireShot Lite saved screenshots as one large image file. Image files from FireShot Lite were converted individually into readable PDF files. Images captured manually were first placed into Evernote then saved as a large (unreadable) PDF file, then converted to a readable PDF file.

4.5.3 Netvizz

Netvizz is a Facebook app designed specifically for academic researchers. It was developed by Rieder from the University of Amsterdam in 2009 (Rieder, 2013). The app was initially developed to study Facebook's API, but due to its popularity, Rieder evolved the app into a Facebook data extraction tool (Rieder, 2013). The original version of the app was able to obtain data from personal networks, groups, and pages for the purpose of social network analysis (Rieder, 2013), but I used the app to download the posts and comments from the four official TinyKittens Facebook pages.

I used versions 1.44, 1.45, 1.5, and 1.6 for this study. The app was updated several times during my study, mainly because of the changes made to Facebook's privacy policies. As can be seen in Figure 42, Rieder attempted to update the app as best he could when Facebook made these changes, but the app ended up losing a lot of its original functionality. And, the app did not pass Facebook's new approval process, which meant it may eventually be taken off the Facebook site.

Netvizz v1.6

Netvizz is a tool that helps you analyze different sections of the Facebook platform – mainly pages – for research purposes. For questions, please consult the [FAQ](#) and [privacy](#) sections. Please reference [this paper](#) in academic work.

Netvizz is being updated regularly. If you encounter a **problem**, please check the [FAQ](#) for how to report it.

Since this application has not passed Facebook's app review for the "Page Public Content Access" permission, it may stop working in the near future. [More details here.](#)

Developing and hosting netvizz costs time and money. If the tool is useful for you, please consider to [Donate](#)

The following modules are currently available:

- [page like network](#) – analyze networks of pages connected through the likes between them
- [page posts](#) – analyze user activity around posts on pages
- [page timeline images](#) – analyze images from the "Timeline Photos" album on pages
- [search](#) – interface Facebook's search function
- [link stats](#) – generate statistics for links shared on Facebook

Big pages can take some time to process (minutes or hours). **Be patient and try not to reload!**

Version History

1.6	7.8.2018	Added interactive visualizations to the page like, page posts, and timeline images modules
1.5	28.7.2018	Getting ready for app review: removed group module, moved to API v3.1, some cleanup.
1.45	21.2.2018	following the February 5 2018 API changes, a number of features have been removed from the page module: reaction counts were added to the basic statistics for the page module and to the image module
1.44	5.6.2017	added attachment retrieval for comments, both for page (top 200 & full stats) and group modules
1.43	25.5.2017	link stat module updated to API version 2.9, which adds valid comment and reaction counts
1.42	3.3.2017	added the ability for multiple seeds to page like network, internal housekeeping and optimizations
1.41	3.12.2016	added caching to page like networks to reduce API strain: page information is now only retrieved once per 24 hours
1.4	5.11.2016	added page timeline images module and reduced the number of posts to calculate page activity in page like networks to 50 to reduce strain.

your IP : 142.114.201.83
your FB UID: 10156129323460277

Figure 42: The landing page for the Netvizz app on Facebook.

4.5.4 Data Cleaning & Formatting

At this point in the data collection process, I had a variety of readable PDF files from TinyKittens Unite, YouTube, and Livestream. And I had 27 tab-delimited files that were downloaded directly from Facebook using the Netvizz app. The readable PDF files did not require any additional manipulation before they could be used in NVivo, but the files from Netvizz needed to be cleaned-up and reformatted in Excel.

4.5.4.1 File Importation

The Netvizz app, while great, can be a little slow if you are trying to obtain a large amount of data. Since there were not that many posts and comments for TinyTuxies, TinyTapeworms, and Grandpa Mason, I was able to run Netvizz once for each page and capture all six months of data at the same time. This produced nine tab-delimited files, three for each page. Due to the large number of comments on the TinyKittens Facebook page, I ran the Netvizz app once for each of the six months. This produced three files for each of the six months, or a total of 18 tab-delimited files. This meant that there were 27 tab-delimited files that needed to be imported to Excel, cleaned up, and reformatted for analysis.

4.5.4.2 Data from Netvizz

Each time Netvizz is run, it produces three tab-delimited files. Each of these three files contains slightly different data, although there is some overlap. These three files are called *Stats per Day*, *Full Stats*, and *Comments*. In general, the data in each file was what I expected, but there were a couple interesting findings that are noted here:

- The date used in the *Stats per Day* file did not always match the dates in the *Full Stats* and *Comments* files. The date used in the *Stats per Day* file appeared to be based on my time zone (ET), but the dates used in the other two files were based on the UTC time zone.
- On Facebook, the comment count displayed at the bottom of each post represents the number of *replies* made directly to the original post. This number does not include replies to comments. In other words, Facebook only displayed the number of *first-level* comments. In Netvizz, the comment counts

include *both* replies to the original post and replies to comments. In other words, Netvizz includes all comments levels.¹⁷

4.5.4.3 UTC Date and Time

Dates and times displayed in the *Full Stats* and *Comments* files appeared as follows: 2018-01-27T00:48:49+0000. This format combines the date and time into one column and displays both based on the UTC time zone. For the purpose of this study, I needed the date and time in separate columns. While I needed the date and time to be easy-to-read, I did not need them displayed for my time zone.¹⁸ I was going to use the date and time to determine if a comment was made within an hour of the post. Therefore, as long as the date and time for both the post and comment were in the same time zone, the specific time zone did not matter. I used the *Text to Columns* function in Excel to isolate the date (2017-01-27) and time (00:48:49) and remove the other characters. I also reformatted the time using Excel's customizable cell formatting function so it displayed the time as HH:MM based on the 24-hour clock.

4.5.4.4 Customized ID Numbers

Two types of ID numbers were included in the Netvizz files, a post ID number and a comment ID number. A post ID number, which appears as 462536430487893_1833331643408358, includes both the page ID number (462536430487893) and the post ID number (1833331643408358). A comment ID number, which appears as 1833331643408358_1833366446738211, includes both the post ID number (1833331643408358) and the comment ID number (1833366446738211).

The page ID number is not important, as it is the same for all posts from each of the four pages. The post ID and comment ID numbers are useful for a couple of reasons: one, they can be used to create a URL to find the post or comment on Facebook; and two, when the numbers are put in numerical order, they display the posts and comments in the order they were uploaded. However, for quick reference,

17. This statement was true in early 2019, but may no longer be true. Facebook changes their application often without providing explanations.

18. To convert UTC to ET (my time zone) and PT (TinyKittens time zone) would require the following calculations: EST + 4 = UTC, PST + 7 = UTC, EDT + 5 = UTC, and PDT + 8 = UTC.

these ID numbers were too long. And, because they did not start at zero or one, they could not be easily used to count the number of posts or comments listed.

In order to create reference numbers that were easy-to-read and useful for other purposes, I inserted new columns in the *Full Stats* and *Comments* files. I then created a new reference number that included a short form of the month (e.g., Jan), a post number that counted upwards starting at 1, and a comment number that counted upwards starting at 1. The final reference number appeared in the following format, Jan_5_802. This reference number allowed me, at quick glance, to know that the post was from January, it was the fifth post that month, and this was the 802nd comment responding to that post.

4.5.4.5 Emojis or Emoticons in Text

Due to the analytical value of emojis and emoticons, especially when they are used in place of words, I wanted to take a deeper dive into the emojis and emoticons used within the TinyKittens online community. In order to do this, I opted to add a column in the *Comments* file where I could include Y if the comment included an emoji or emoticon and N if it did not. Initially, I created two columns, one for emojis and the other for emoticons. But after some investigation, I discovered that what appeared as emoticons in my Netvizz data files were sometimes emojis on Facebook.

One good example of this discrepancy is a January 28 post on TinyKittens. The Netvizz data files had the following text: “BREAKING MEWS! This video will make. your. day. Three Amigos - Elliott Pele & Birch <3 <3 <3 #perchiott #TheNanoEffect.” However, Figure 43 shows what the post looked like on Facebook. As you can see, what appeared as an emoticon in Netvizz (<3) was actually written as an emoji (❤️) on Facebook.

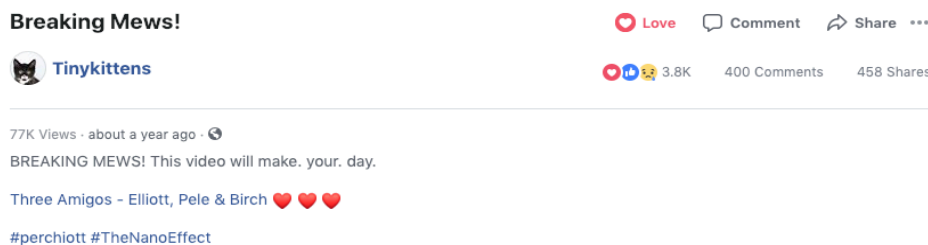


Figure 43: A post from the TinyKittens Facebook page in which an emoji appeared in the post, but an emoticon appeared in the Netvizz data.

Since I had made sure to import each Netvizz file with the appropriate character coding, and some of the emojis were being displayed properly, I honestly have no idea why all emojis were not displayed properly. As an example, the following is the text found in Netvizz for a post from the same page on January 27. As you can see, only three emojis are displayed.

Dr. F and I spent the afternoon kicking off the forest phase of our Top Secret new feral cat project. It went much more smoothly than anticipated. 😊 You guys are going to be excited and we're going to learn a LOT. Plus we're checking teeth boosting vaccines and treating for fleas/worms/ear mites. Thank mew Mountain View Veterinary Hospital for spending your day off in the back of a van knee deep in sardines and feral cat slobber. I hope your family likes sardines because the smell is hard to get rid of. 🤔👉 Answers to questions: I cut a hole in the towel. It's our newest feral-handling experiment - we use our old towels for the cats who are the most difficult to manage and VERY CAREFULLY cut a hole just big enough to access whichever part we need once the cat is wrapped so we don't have to find an edge of the towel and expose half the cat/increase risk of them escaping. So far so good. :) And we did not release them into the road in case it looked like that was the plan. They went back to the feeding station it was just easier to transport them in their towels than to have to mush them back into the traps. :)

Figure 44 shows the same post as it appears on Facebook. On Facebook, five emojis are displayed. Plus, the fourth and fifth emojis displayed are the same as the first emoji used, which was displayed properly in Excel.



Figure 44: Another post in which emojis appeared in the post (circled), but emoticons appeared in the Netvizz data.

Thankfully, this issue was more annoying than concerning. The inconsistency of the Netvizz data meant I was unable to distinguish between an emoji or emoticon in that data. However, the fact that an emoji or emoticon appeared was not impacted. Therefore, instead of two columns to identify emojis and emoticons, I used one.

4.5.4.6 Text in Comments

For coding and thematic analysis purposes, I needed to isolate the first 1% of comments from each post. However, not all comments included text. In order to ensure only comments with text were included in the thematic analysis, I created a new column in the *Comments* file where a Y and N indicator would identify which comments did and did not include text. I then used a formula to identify which cells were blank and add N to the new column.

Unfortunately, if a comment only included emoticons and/or emojis, it appeared as text and would result in Y when the above-noted formula was used. As I wanted to analyze emojis and emoticons in a more automated fashion, I wanted to set these aside and have N in the column. In order to do this, I used the filter function to display cells that only included emotions and/or emojis and the *Find and Replace* function to input the N.

4.5.4.7 Comments for Analysis

Only the first 1% of comments *with text* were to be included in the coding and thematic analysis. To identify which comments these were, I first inserted a new column in the *Comments* file that included another Y and N indicator. Then, I used Excel to calculate how many comments from each post equaled 1%. When it was not an absolute number, I rounded up. For example, if one post had 500 comments, then the first five comments *with text* were to be included in the thematic analysis and needed Y in the new column.

Once I knew how many comments from each post needed to be included, I used Excel formulas to look-up the appropriate ID numbers and input either Y or N in the new column. Those formulas also checked the indicator in the *Text in Comment?* column and skipped over any comments that did not include text. At this point, a

filter could be used on the new column to display only rows with Y and those comments could be saved into a PDF for import into NVivo.

4.6 Data Analysis

All qualitative analysis was completed in NVivo 12 for Mac (v12.2.0). All quantitative analysis was completed in Excel. Data from each of the four official TinyKittens Facebook pages plus data from TinyKittens Unite were included in the coding phase of the qualitative analysis. Data collected from YouTube and Livestream were not coded, but were used to triangulate the findings.

Section 4.6.1 provides a walk-through of how the codebook was developed. The full codebook, with descriptions and examples, can be found in Appendix A. Sections 4.6.2 and 4.6.3 provide an overview of how the coding and analysis was conducted in NVivo. And Section 4.6.4 provides a brief overview of the descriptive statistics calculated for the quantitative analysis.

4.6.1 Codebook Development

The codebook for this study (see Appendix A) was created using advice and instruction from Saldana's 2016 book titled *The Coding Manual for Qualitative Researchers*. I decided to use coding as the main method of analysis because "coding is analysis...an exploratory problem-solving technique without specific formulas or algorithms to follow...coding is not just labeling, it is *linking*" (Saldana, 2016, p. 8). Coding allowed me to interpret and synthesize what I found on Facebook into categories that represent routines, rituals, rules, roles, and relationships. I was then able to use these categories to identify patterns, "repetitive, regular, or consistent occurrences of action/ data that appear more than twice" (Saldana, 2016, p. 5). Finally, I was able to translate those categories and patterns into major themes; themes that identified what the data was about and what the data meant (Saldana, 2016).

The first step in this analysis process required the development of a codebook that could be used to identify the above-noted categories and patterns within the Facebook data. A "code is a researcher-generated construct that symbolizes or 'translates' data and thus attributes meaning to each individual datum for later

purposes” (Saldana, 2016, p. 4). For this study, I developed the codes and codebook from scratch. I did not use any previously developed set of codes.

Saldana (2016) suggests that you “[s]tart coding *as* you collect and format your data” (p. 21), which is how I started my overall codebook development process. However, in addition to thinking about codes and coding while collecting and formatting my data, I had the added benefit of being a long-time TinyKittens community member. With over four years of participation in the community, I had already noticed many categories and patterns that could be used for code development. I do, however, realize that my personal involvement “positions or angles how [I] perceive, document, and thus code [my] data” (Saldana, 2016, p. 8), which is why I was also very careful to align my codebook with my research questions.

My research questions are such that I needed to ensure my codes were able to identify the following major categories and patterns in the Facebook data:

- The *type* of information being exchanged.
- The *benefits* community members say they receive.
- The ways in which community members say they are *supported*.
- The implicit and explicit *emotions* community members say they feel (and why they feel them).
- The types of real-world *activities* (related to animal rescue) community members say they are involved with.

Saldana (2016) points out that “the qualitative analytic process is cyclical rather than linear” (p. 68). Because of this, decisions regarding code choices and methods never really ended. Every time I read an excerpt of my data, I was thinking about how it might impact my codes and codebook. Therefore, while I explain my process in a linear fashion in this document, these various steps did not always happen in the order they are described.

4.6.1.1 Selecting Coding Methods

Saldana (2016) divides coding methods into three groups: first cycle coding methods, first to second cycle coding methods, and second cycle coding methods (p. 68). The first cycle coding methods group (which I would describe as the main group of

coding methods) are further divided into sub-groups and then specific coding methods. For example, the first cycle coding method group includes the sub-group of affective methods which includes emotion coding, values coding, versus coding, and evaluation coding. In all, Saldana (2016) provides examples for six sub-groups and 25 coding methods in the first cycle coding methods group. Selecting which sub-group and coding method were appropriate for this study was based entirely on my research questions. Table 6 displays each type of information I needed to collect and the sub-group and method I chose to collect it.

Table 6

Sub-Groups and Coding Methods Selected for Information Type

Research Question	Sub-Group	Coding Method
Type of information.	Elemental Methods	Descriptive Coding
Types of benefits.	Elemental Methods Grammatical Methods	Process Coding Attribute Coding
Types of supports.	Elemental Methods Grammatical Methods	Process Coding Attribute Coding
Emotions.	Affective Methods	Emotion Coding
Types of activities.	Elemental Methods	Process Coding
Other	Procedural Methods	Domain & Taxonomic Coding

Note: The 'other' category is for TinyKittens-specific vocabulary.

4.6.1.2 *Elemental Methods, Descriptive Coding*

“Elemental coding methods are primary approaches to qualitative data analysis” (Saldana, 2016, p. 97). And “[d]escriptive coding assigns basic labels to data to provide an inventory of their topics” (Saldana, 2016, p. 97) or “summarizes in a word or short phrase — most often a noun — the basic topic of a passage” (p. 102). Saldana (2016) warns that descriptive coding should be used sparingly (in reference to interview transcripts), but the same warning could apply here. Technically, every sentence in the data could have a descriptive code (or noun) associated with it. But the point of this coding method is to represent the *types* of information exchanged between community members.

My descriptive codes were sub-divided into four groups: Shelly's Posts, Comments to Shelly's Posts, TKU Posts, and Comments to TKU Posts. This subdivision was included because there is a significant enough difference between how these groups communicate, which I wanted to review in the analysis. For example, an announcement from Shelly is different than an announcement from a TinyKittens Unite group member.

Three sub-codes were added that could be used with any descriptive code, regardless of the sub-group. Each of these three codes highlighted when a photo, video, or sticker was included in the post or comment. Eventually, these codes could be used to determine how many posts and comments included each type of multi-media. Due to the way in which the data for the official Facebook pages was displayed, these sub-codes did not need to be used for Shelly's Posts and Comments to Shelly's Posts.

4.6.1.3 Elemental Methods, Process Coding

Saldana (2016) mentions that process coding uses only gerunds for codes (words that end in 'ing'). It was for this reason that I used process coding—because the codes could be linked to action items. For example, for benefits or supports, codes such as *educating* or *relaxing* could be included, or for activities, codes such as *volunteering* or *fostering* could be included.

4.6.1.4 Grammatical Methods, Attributes Coding

"Grammatical coding methods refer not to the grammar of language but to the basic grammatical principles of a technique" (Saldana, 2016, p. 82). I used only one type of coding method within the grammatical methods sub-group, attribute coding.

"*Attribute coding* logs essential information about the data and demographic characteristics of the participants for future management and reference" (Saldana, 2016, p. 82). I used attribute coding to capture any mention of one or more of the following:

- Geographical location (city, state / province, country)
- Gender
- Employment (job title or description, unemployed, student, etc.)

- Age
- Family situation (husband, wife, son, daughter, pregnant, divorced, etc.)
- Cats (domestic, stray, feral, foster, etc.)
- Medical conditions (for humans and cats)

I opted to include codes for these attributes because they would be easy to spot. I was also aware that mention of one of these attributes might provide context for other coded information. If enough items were coded with one of these attributes, it might provide another layer to the analysis (e.g., more females than males said..., or members who are unemployed said..., etc.).

4.6.1.5 Affective Methods, Emotion Coding

“Affective coding methods investigate subjective qualities of human experience by directly acknowledging and naming those experiences...affective qualities are core motives for human action, reaction, and interaction” (Saldana, 2016, p. 124). And “[e]motion coding...labels the feelings participants may have experienced” (Saldana, 2016, p. 124). I used emotion coding for exactly that—to code explicit or implicit emotions expressed by community members in their posts or comments.

In order to ensure I included enough codes to cover all relevant emotions, without overlapping any codes, I explored lists and definitions of words that describe emotions. For example, did *happy* and *excited* mean the same thing? What about *horrified* and *scared*? I also needed to provide as many synonyms for each code as possible because not everyone expresses an emotion using the exact same words. For example, the code *happy* could also mean joy, glad, elation, pleasure, joking, or being silly, and the code *surprise* could also be astonishment, wonder, or amazement.

Emotion coding was also used for emojis or emoticons. In many cases, community members used emojis and emoticons to express their feelings, rather than words. Therefore, the *happy* code was used for happy face emojis. And the *love* code was used for the heart emoji.

4.6.1.6 Procedural Methods, Domain and Taxonomic Coding

“Domain and Taxonomic Coding is an ethnographic method for discovering the cultural knowledge people use to organize their behaviours and interpret their

experiences” (Saldana, 2016, p. 181). Normally multiple codes are created to represent different aspects of this cultural knowledge and associated experiences, but I wanted to be able to code one thing—folk terms. The TinyKittens online community has (unintentionally) created its own vocabulary (e.g., power of the paw, tiny suitcases, etc.). Many of the terms found in that vocabulary are used regularly by members. I used this code to keep track of all the folk terms I came across while coding.

4.6.1.7 Other Coding Methods

A number of other coding methods were used throughout the codebook, although they were not always used as designed by Saldana. For example, I used In Vivo coding where the specific vocabulary of the community members made sense, but I did not use this method for the entire coding process (as is usually the case). Table 7 outlines the four additional methods used in this study.

Table 7

Additional Coding Methods Used in Codebook Development

Sub-Group	Method	Saldana (2016)	Usage in This Study
Elemental	In Vivo	“[A] code [that] refers to a word or short phrase from the actual language found in the...data” (p. 105).	‘Power of the Paw’
Grammatical	Sub-coding	“A subcode is a second-order tag assigned after a primary code to detail or enrich the entry” (p. 91).	Subcodes used for Descriptive and Attribute codes.
Grammatical	Simultaneous	“Simultaneous coding applies two or more different codes to a single qualitative datum, or the overlapped occurrence of two or more codes applied to sequential units of qualitative data” (p. 94).	Process, Attribute, and Emotion codes often overlapped with Descriptive codes.
Affective	Values	“[C]odes...that reflect a participants values, attitudes, and beliefs, representing his or her perspective or worldview”	Three codes used—Values, Attitudes, and Beliefs—to capture specific related comments

Sub-Group	Method	Saldana (2016)	Usage in This Study
		(p. 131).	that may prove useful during the analysis.

Note: Quotes are from Saldana, 2016.

4.6.1.8 Code Word Selection

Once the coding methods were determined, I developed the actual words (or phrases) that would be used as codes. This is a perfect example of a step that did not occur in a linear fashion. Before I started coding, I developed a preliminary codebook that included codes I developed from experience and data collection. Once I started coding, it was not unusual to come across data that did not fit nicely into a code from the preliminary codebook. When this happened, if it made sense, I updated the codebook and added a new, relevant code.

Figure 45 lists all the code words included in the final codebook, with the coding method they each fall under. The table also includes an indicator if the code word was part of the preliminary codebook or added during coding and an indicator of which codes were never used. The full codebook, with descriptions and examples, can be found in Appendix A.

Code Word	Prelim Codebook?	Used in Analysis?	Code Word	Prelim Codebook?	Used in Analysis?	Code Word	Prelim Codebook?	Used in Analysis?
Descriptive Codes			Descriptive Codes > Comments to TKU Posts			Attribute Codes		
Includes Photo	Yes	Yes	Advice	Yes	Yes	Age	Yes	Yes
Includes Sticker	No	Yes	Answer	Yes	Yes	Cats > Foster	Yes	Yes
Includes Video	Yes	Yes	Apology	No	Yes	Cats > Owned	Yes	Yes
Descriptive Codes > Shelly's Posts			Critical	Yes	Yes	Cats > Stray_Feral	Yes	Yes
Adoption	Yes	Yes	Emoji Only	Yes	Yes	Employment	Yes	Yes
Advertisement	Yes	Yes	Explanation	No	Yes	Family Situation	Yes	Yes
Advocating	No	Yes	Follow-up Questions	No	Yes	Gender	Yes	Yes
Announcement	Yes	Yes	Funny	Yes	Yes	Geographic Location	Yes	Yes
Entertainment	Yes	Yes	GIF Only	Yes	No	Medical Condition > Cat	Yes	Yes
Explanation	Yes	Yes	Gratitude	Yes	Yes	Medical Condition > Family	Yes	Yes
Funny	No	Yes	Observation	No	Yes	Medical Condition > Follower	Yes	Yes
Request	No	Yes	Personal Story	Yes	Yes	Emotion Codes		
Thank You	Yes	Yes	Photo Only	Yes	Yes	Acceptance	Yes	Yes
Descriptive Codes > Comments to Shelly's Posts			Power of the Paw	Yes	Yes	Admiration	Yes	Yes
Critical	Yes	Yes	Request	No	Yes	Angry	Yes	Yes
Funny	Yes	Yes	Sharing with TKU Members	No	Yes	Anxious	Yes	Yes
Gratitude	Yes	Yes	Statement	No	Yes	Bored	Yes	No
Observation	No	Yes	Sticker Only	Yes	Yes	Calm	Yes	No
Personal Story	Yes	Yes	Supportive	Yes	Yes	Confident	Yes	Yes
Prayer	No	Yes	Video Only	Yes	Yes	Curious	No	Yes
Question	No	Yes	Process Codes			Determined	Yes	Yes
Sharing with FB Friend	No	Yes	Adopting	Yes	Yes	Disappointed	Yes	Yes
Simple Comment	No	Yes	Advising	Yes	No	Disgusted	No	Yes
Suggestion	No	Yes	Communicating	Yes	Yes	Excited	Yes	Yes
Supportive	Yes	No	Donating	Yes	No	Frustrated	Yes	Yes
Descriptive Codes > TKU Posts			Educating	Yes	Yes	Guilty	Yes	Yes
Announcement	No	Yes	Entertaining	Yes	No	Happy	Yes	Yes
Criticism	Yes	Yes	Fostering	No	Yes	Helpless	Yes	Yes
Educational	Yes	Yes	Fundraising	No	Yes	Hope	Yes	Yes
Entertainment	Yes	Yes	Helping	Yes	Yes	Horrified	Yes	Yes
Explanation	No	Yes	Learning	Yes	Yes	Jealous	Yes	Yes
Funny	No	Yes	Listening	Yes	No	Love	Yes	Yes
Gratitude	No	Yes	Observing	Yes	Yes	Pity	Yes	Yes
Personal Story	Yes	Yes	Relaxing	Yes	Yes	Proud	Yes	Yes
Question	Yes	Yes	Rescuing	No	Yes	Regret	No	Yes
Request	Yes	Yes	Stress Relieving	Yes	Yes	Relief	No	Yes
Update in Post	No	Yes	Supporting	Yes	Yes	Sad	Yes	Yes
Warning	Yes	No	Volunteering	Yes	Yes	Scared	Yes	Yes
Values Codes			Domain & Taxonomic Codes			Surprise	Yes	Yes
Attitude	Yes	Yes	Folk Term	Yes	Yes	Sympathy	No	Yes
Belief	Yes	Yes				Trust	Yes	No
Value	Yes	Yes						

Figure 45: List of all codes used in this study, including if the code was added during the coding process and if it was used.

4.6.2 Coding in NVivo

The coding process for this study occurred in NVivo 12 for Mac (v12.2.0). Data sets were imported into NVivo as PDF documents. (NVivo has the ability to import Excel spreadsheets as data sets, but the functionality of data sets is limited.) Codes were setup as nodes, using a hierarchy based on the coding methods. Memos, annotations, and memo links were utilized where needed. And queries were used, where useful, for analysis purposes. This section will provide highlights of the coding process used in the analysis.

4.6.2.1 Imported Files

As described in the Data Collection section, Netvizz data was cleaned and formatted in Excel. Once formatted, the posts and comments from the four official Facebook pages were saved as PDFs and those PDFs were imported into NVivo. Since they were readable PDF files, the text in the files was searchable and could be highlighted for the purpose of coding. In total, 18 PDF files were imported into NVivo. All 18 files were formatted to look almost identical (one example is provided in Figure 46). While there were multiple columns included in each PDF file, only the columns titled *post_message* or *comment_message* were coded.

The screenshot shows the NVivo interface with a data table. The table has columns for 'post_message' and 'comment_message', which are highlighted in blue. A red arrow points to the 'comment_message' column header. The table contains multiple rows of data, with some cells containing text snippets. The interface also shows a sidebar with various toolbars and a search bar at the top.

Figure 46: An example of what each of the official Facebook data files looks like in NVivo. Only the text from the 'post_message' or 'comment_message' (arrow) columns were coded.

In addition, the readable PDF files created from screen captures of both TinyKittens Unite and YouTube were imported into NVivo. However, only the PDF

files of the TinyKittens Unite posts and comments were coded. Unlike the PDF files created from Excel, the PDF files for TinyKittens Unite and YouTube were images and looked exactly like they would in a browser (see Figure 47). But, because they were run through the OCR software, the text associated with each post and comment was readable and searchable.¹⁹

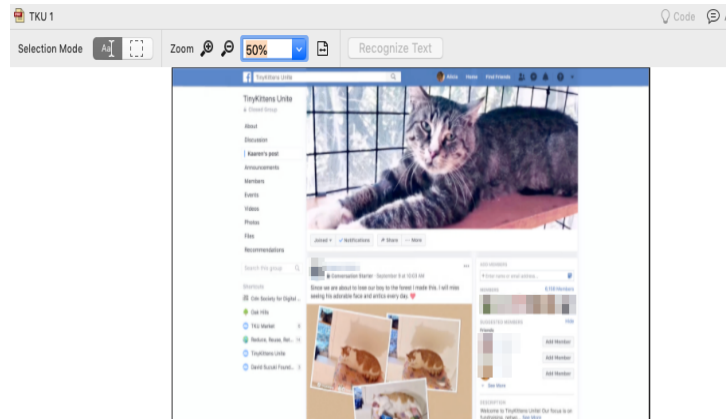


Figure 47: An example PDF file for one of the posts and associated comments from TinyKittens Unite.

As a note, because images such as stickers, GIFs, photos, videos, etc., were obviously not converted to text, I used the NVivo image coding function to code these items. For example, if a sticker was used in a comment that represented the *Power of the Paw*, it was coded with the descriptive code for *Power of the Paw*. Or if a heart sticker was included in a comment, it was coded as *love* using the image coding function.

4.6.2.2 Nodes and Codes

All codes were input into NVivo as nodes (one code per node). The nodes were organized within the node folder by coding method (see Figure 48). Initially, only the codes from the preliminary codebook were input. As coding took place, additional codes were added when required. All nodes included a description of the code in *Node Properties* (see Figure 49).

19. Due to the way the OCR software works, I was able to highlight the text I wanted recognized and only make that readable. Therefore, most of the extraneous text on the page was not readable and not searchable.

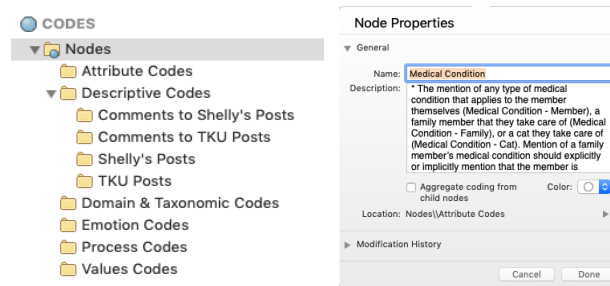


Figure 48 [left]: Hierarchy of the folders in NVivo used to store codes.
 Figure 49 [right]: An example of the Node Properties for a specific node.

While it may seem insignificant, the folder hierarchy for the nodes was very helpful when analyzing the coded data. This hierarchical structure allowed me to look at coded text from a specific node as well as all the nodes under a specific type of coding method or grouping (e.g., Emotion Codes or Shelly's Posts).

4.6.2.3 Coding Process, First Pass

Coding took place over the course of approximately a month. Official Facebook posts were coded first, then official Facebook comments, then TinyKittens Unite. TinyTuxies was coded first, then TinyTapeworms, then Grandpa Mason, and finally TinyKittens. TinyKittens posts and comments were coded in date order by month. TinyKittens Unite files were coded in order of the file number (which represented the date the image was captured).

Some interesting observations were made during coding, they are listed below. While interesting, none of these items impacted the results of the coding or analysis.

- Community members did not always write in full sentences or even full words.
- Community members did not always use punctuation.
- There were a lot of spelling mistakes, sometimes to the point where it was difficult to determine what the community member was trying to say.
- Not all comments were in English. When posts were in other languages, Google Translate was used to find the English translation. That translation was then copied into NVivo as an annotation.

While this section is labelled as the First Pass, coding was not always done in a linear fashion. For example, when a post or a comment required a new code, I would usually go back and re-read items I had already coded to make sure the new code would not be more appropriate. Therefore, while posts and comments were read

through at least two to three times each, and coding was altered or updated as needed with each reading, a second pass did not necessarily occur after all data was reviewed during a first pass.

4.6.3 Thematic Analysis

Once all Facebook-related files in NVivo were coded, my next step was to conduct the thematic analysis. As the title implies, the purpose of this analysis is to look for major themes in the data based on the codes. And since the codes were developed with the research questions in mind, those major themes should also answer the research questions.

4.6.3.1 Code Counts and Frequencies

While it may seem like a part of the quantitative analysis, the first step I took for the thematic analysis was to add up how many of each code was used. Then I calculated the use percentage of each code based on the total codes in each coding method (e.g., the *Cats > Owned* code was used 136 times in the analysis, which represents 46% of all the attribute codes used). The purpose of these calculations was to quickly determine which codes were used most/least often so I could focus my attention on the codes with the highest and lowest frequencies. Codes that were used a lot or very little may be an indication of a pattern that should be analyzed further.

4.6.3.2 Attribute Codes

Attribute codes were mainly used to capture demographic characteristics. These codes were included in case any interesting conclusions could be drawn from these characteristics. On their own, however, attribute codes were not needed to answer the research questions. From a thematic standpoint, data from the most frequently used attribute codes were reviewed to determine their applicability to the rest of the analysis.

4.6.3.3 Process Codes

Process codes were used to capture the explicit mention of specific activities. The original list of process codes was created based on what I had previously seen on

TinyKittens. Process codes were designed to identify activities being completed by TinyKittens online community members because of the influence of TinyKittens. For example, a community member stating that they started fostering kittens after watching TinyKittens.

After an initial coding phase was completed, I used the search query to determine the number of times certain process code words were used in the full data set (100% of the comments, not 1%). In addition to searching for the process code word itself, I included stemmed words. For example, when searching for *adopting*, I included *adopt* and *adopted* as well. And in situations where many different terms might have been used by community members to describe the same activity, I added those words. For example, when searching for *communicating*, I also included *communicate* and *communicated*, plus *told*, *tell*, *telling*, *explain*, *explained*, *explaining*, *discuss*, *discussed*, and *discussing*. While I could review the specific posts or comments in which each of these terms appeared, I used this search method to determine if one (or more) type of activity was mentioned more than the others. I then reviewed, in more detail, the posts and comments in which the more frequent terms appeared to determine their applicability to the research questions.

4.6.3.4 Emotion Codes

Of all the codes used, the emotion codes interested me the most. This is partly because they could be used to code both text and images (i.e., emojis, stickers, photos). From my experience on TinyKittens, community members use emojis and stickers frequently to express emotions, possibly because they find it difficult to express those emotions in words.

When coding for emotions, an entire sentence would be coded, not just the emotion-related word. This was because the emotion was not always explicitly mentioned and context was vital. It was also not uncommon for one sentence to express more than one emotion (e.g., happiness and relief or love and sympathy), therefore emotion codes often overlapped.

After an initial review of the frequency of emotion code words, I opted to combine some codes into groups due to their infrequent use. For example, *disappointed*, *frustrated*, and *disgusted* were combined into one code group as together they were only used 67 times.

I then used the search query to look for emotion codes (and other words that described that emotion) in the full data set. For example, when searching for instances of *happy*, I also searched for the words *happiness*, *glad*, *joy*, and *joyful*, all of which express the same general emotion of being happy. This search was also conducted with emojis, as they were searchable in NVivo, which allowed me to determine how often certain emojis were used in the full data set.

As with process codes, the search of the full data set was conducted as a way of confirming the results in the sample. If *love* was the second most used emotion code in the sample data, was it also the second most expressed emotion in the full data set? (Spoiler: It was not, it was the *most* frequently expressed emotion in the full data set.)

Once the counts from the searches were tabulated and analyzed, I went on to analyze the specific data (and associated context) of items under each emotion code. This step allowed me to determine if community members were expressing specific emotion the same way, or if there were multiple reasons why they would express a specific emotion. This analysis then provided direct results in which to answer my research questions.

4.6.3.5 Descriptive Codes

Descriptive codes were used in order to determine what type of information members of the TinyKittens online community were exchanging and how frequently they were exchanging that type of information. Every single post and comment included at least one descriptive code, as every post and comment sought or provided at least one piece of information.

Descriptive codes were also divided into four groups: Shelly's Posts, Comments to Shelly's Posts, TKU Posts, and Comments to TKU Posts. This division was helpful as I was able to keep the results of each group separate in NVivo. (While it was also possible to use the query function to show a sub-set of codes, this process was much easier in my opinion.) These divisions were also practical. Each of the four groups mentioned above have a different purpose. For example, Shelly's posts are from the organization as a whole and are often used to share information specifically about TinyKittens and/or announce TinyKittens events, while TKU posts are from specific community members usually about themselves. Shelly does not write posts that ask

(non-rhetorical) questions, whereas TKU community members ask questions all the time.

One descriptive code that was common amongst three of the four groups was *explanation*. Initially, this code only appeared under descriptive codes for Shelly's Posts because it was not unusual for her to explain why something was happening. While coding TKU Posts and Comments to TKU Posts, I determined that an *explanation* code was also required for these two groups. I used the *explanation* code for all the text after the initial sentence (or two) where the true purpose of the post or comment was outlined. For example, the first sentence in a TKU Post might be a direct question (*What type of litter do you guys recommend?*) but the remainder of the post may include a (sometimes very detailed) explanation of why the community member was asking the question (*I read an article where litter type A was said to be the best, but my friend hates it because it's so dusty...and then I moved to Seattle.*). The purpose of the first sentence and the remaining sentences are very different. Not to mention that the first sentence (the question) would have been sufficient enough to garner multiple responses. Including the *explanation* code allowed me to determine how often community members voluntarily provided additional (or too much/unnecessary/personal/irrelevant) information.

Data for each of the four descriptive code groups was reviewed separately and themes were developed for each group. Themes were then compared between the groups.

4.6.3.6 Values Codes

Values codes (of which there were only three, Attitude, Belief, and Value) were included in order to determine whether themes could be found related to the types of values expressed. These codes were added based on my previous experience of seeing Shelly mention things like *spay and neuter your cats to prevent unnecessary suffering* frequently. I was curious if the value statements expressed by Shelly were influencing community members.

Values codes, like attribute codes, were not designed to answer my research questions on their own. But they do help tell the story that is the TinyKittens online community. I reviewed the data that was coded with one of the three values codes to

look for similarities, and then compared the themes from posts Shelly had written to the themes from posts and comments written by community members.

4.6.3.7 Domain and Taxonomic Codes

Only one code was created for this code group, *Folk Terms*, and this code had only one purpose, to highlight the unique words or phrases used by TinyKittens online community members. During the coding process, any words or phrases that appeared to be unique to the TinyKittens online community was coded with *Folk Term*. Then, those words and phrases were listed for review and analysis.

I was familiar enough with the TinyKittens online community that I already knew what most of the folk terms meant. However, I did review the context within which the term was used to determine if it was being used to express something different from what I was familiar. Folk terms were the only codes for which I did not conduct any type of count. I was more interested in the breadth or variety of folk terms, not how often they were used.

4.6.4 Descriptive Statistics

In addition to the qualitative analysis performed in NVivo, a high-level quantitative analysis was also conducted in Excel. The purpose of the quantitative analysis was to look at the bigger picture based on the frequency of posts and comments by different factors (e.g., posts with and without photos, comments with and without emojis, etc.). This analysis was fairly straight-forward for data from the four official TinyKittens Facebook pages because that data was already in Excel. However, data from TinyKittens Unite needed to be manually entered into Excel before a quantitative analysis could take place.

4.7 Chapter Conclusion

The first three chapters provided the *who*, *what*, and *why*. This chapter provided the *how*. That *how* included the scope of the data in order to cover as many notable events as possible. All posts and comments from the four official Facebook pages between January and June 2018 were considered in-scope. Manually collected data from TinyKittens Unite, YouTube, and Livestream in 2018 were also considered in-scope.

This chapter also included *how* the sample population of posts and comments was calculated. In all, 243 posts from the four official Facebook pages, the first 1% of comments (with text) from each of those posts, 71 posts from TinyKittens Unite, and 2,733 comments from TinyKittens Unite were included in the analysis.

The *how* also included what ethical considerations needed to be taken into account and that the University of Alberta's REO does not require an ethics application for publicly available data where there is no reasonable expectation of privacy (based on their definition).

From a data collection perspective, the *how* included the way the data from all in-scope sources was collected. TinyKittens Unite, YouTube, and Livestream data was collected manually using screenshots and OCR software. Official Facebook page posts and comments were collected using the Netvizz app.

Finally, from a data analysis perspective, the *how* included the way in which the research questions would be answered, by coding all sample data from Facebook in NVivo using a codebook developed specifically for this study. Then by conducting a thematic analysis of the coding results.

CHAPTER 5 RESULTS

“A happy arrangement: many people prefer cats to other people, and many cats prefer people to other cats.” Mason Cooley

5.1 Chapter Overview

The *who*, the *what*, the *why*, and the *how* of this study have all been provided. The goal of this study was to analyze the posts and comments from members of the TinyKittens online community in order to show the benefits those members receive. This study was designed to achieve this goal by first coding the in-scope posts and comments, then by conducting a thematic analysis on the coded data. The thematic analysis was conducted in order to identify the types of information exchanged between TinyKittens online community members, as well as how that information exchange provides evidence for the community-based (virtual) human-animal bond.

This chapter reviews the findings found from both the coding and the thematic analysis of the aforementioned posts and comments. I will start by reviewing the *big picture* findings by asking: what themes can be found by looking at the quantitative aspects of the coding results? And what does this *big picture* say about the types of information exchanged and the community-based (virtual) human-animal bond, if anything?

Next, I conduct a *deep dive* and review results of codes and code groups in more detail by asking: what specific types of information are exchanged and in what context? What activities do community members discuss and why? What types of emotions are expressed and why? And what language is used between community members when they exchange information, discuss activities, and express emotions?

Finally, I provide the *bottom line* and review the thematic results associated with the code groups, both by individual code group and by combinations, by asking: do the themes found from the *big picture* carry through in the details? Does the combination of findings from different code groups alter the thematic findings or reinforce them?

This chapter will not answer the research questions, but instead will assemble all the evidence required to answer the research questions. Chapter 6 will compare the findings from this chapter to the theoretical framework outlined in Chapter 3 in order to answer

the research questions and provide evidence of the community-based (virtual) human-animal bond.

5.2 The Big Picture: Quantitative Review

Themes can become apparent by analyzing detailed information, but they can also become apparent by looking at the big picture. In this case, the big picture is the high-level quantitative results developed using the descriptive statistics outlined in Section 4.6.4.

Those statistics, while minimal, say a lot about the day-to-day activities within the TinyKittens online community, including: what types of information are exchanged, how often is that information exchanged, what types of emotions are expressed, and how often those emotions are expressed. The combination of information exchanged and emotions expressed may provide evidence of a community-based (virtual) human-animal bond experienced by members of the TinyKittens online community.

5.2.1 Facebook Pages

5.2.1.1 Official Facebook Pages

TinyKittens has four official Facebook pages that are in-scope for this study: TinyKittens, TinyTapeworms, TinyTuxies, and Grandpa Mason. All the posts and comments from these four pages for the months of January to June 2018 were downloaded using the Netvizz app. During this time period, the four official Facebook pages had 243 posts, 71,835 (downloaded) comments, 97,906 shares, and 1,109,756 reactions. That is equivalent to the following averages,

- 41 posts per month or 61 posts per page,
- almost 12,000 comments per month or just under 18,000 comments per page,
- about 16,000 shares per month or around 24,000 shares per page, and
- almost 185,000 reactions per month or around 277,000 reactions per page.

Figure 50 provides an overview of how these posts, comments, shares, and reactions were split between the four pages and the six months.

Page	Month	# of Posts	# of Comments	# of Shares	# of Reactions	Page	Month	# of Likes	# of Loves	# of Hahas	# of Wows	# of Sads	# of Angrys
All Pages	Jan	30	6,931	8,036	112,696	All Pages	Jan	56,344	49,674	1,089	4,083	1,504	2
All Pages	Feb	30	5,053	5,252	84,868	All Pages	Feb	44,194	35,588	822	3,113	1,145	6
All Pages	Mar	22	6,436	5,437	87,131	All Pages	Mar	43,983	38,329	383	2,271	2,158	7
All Pages	Apr	45	11,142	15,422	183,624	All Pages	Apr	93,813	81,719	1,699	3,834	2,548	11
All Pages	May	58	20,610	31,093	330,409	All Pages	May	159,572	151,586	2,742	8,385	8,102	22
All Pages	Jun	58	21,663	32,666	311,028	All Pages	Jun	139,886	142,864	5,032	17,571	5,659	16
All Pages	All	243	71,835	97,906	1,109,756	All Pages	All	537,792	499,760	11,767	39,257	21,116	64

Page	Month	# of Posts	# of Comments	# of Shares	# of Reactions	Page	Month	# of Likes	# of Loves	# of Hahas	# of Wows	# of Sads	# of Angrys
TinyTapeworms	All	28	2,282	320	24,397	TinyTapeworms	All	9,226	6,262	2,907	625	5,377	0
TinyTuxies	All	22	2,115	929	29,170	TinyTuxies	All	12,133	10,459	203	6,361	14	0
Grandpa Mason	All	62	19,172	19,496	304,920	Grandpa Mason	All	139,153	153,638	677	10,275	1,155	22
TinyKittens	All	131	48,266	77,161	751,269	TinyKittens	All	377,280	329,401	7,980	21,996	14,570	42
All Pages	All	243	71,835	97,906	1,109,756	All Pages	All	537,792	499,760	11,767	39,257	21,116	64

Figure 50: The total number of posts, comments, shares, and reactions (overall and by type) by month and by official TinyKittens Facebook page.

The months of May and June 2018 are tied for the most number of posts. June 2018 has the most number of comments and the most number of shares. And May 2018 had the most number of reactions. This is not surprising as the three litters of kittens were all born at the end of April, making the months after they were born the most active months for activity on Facebook.

The TinyKittens Facebook page had the most posts, comments, shares, and reactions of all four pages. This is also not surprising because TinyKittens is the main Facebook page administered by the TinyKittens Society and tends to be the focal point for most of the information shared by Shelly. The fact that the same page has the highest number of comments, shares, and reactions makes sense, as the more posts there are, the more often there is a chance to comment, share, and react.

Likes were the most used reaction overall and for all pages except Grandpa Mason, for which Love was the most used reaction. It is also interesting to note that the Angry reaction only appeared 64 times in six-months across four pages and out of over one million reactions. None of these numbers are surprising because the Like reaction is the default reaction on Facebook; all other reactions require a bit more effort to use. Reactions are displayed in the order of Like, Love, HaHa, Wow, Sad, and then Angry. On one hand, it could be assumed that Angry was not used often because it is the last reaction in the list and requires the most amount of manipulation to select. However, the Sad reaction was used over 21,000 times over the six-months and four pages, and is the fourth most frequently used reaction. Therefore, I believe it is safe to assume that only 64 Angry reactions were used because TinyKittens online community members were rarely ever angry about a post written by Shelly.

Page	Month	# of Posts	# of Comments	# of Shares	# of Reactions
TinyTapeworms	Jan	1	88	4	630
TinyTapeworms	Feb	4	172	10	2,038
TinyTapeworms	Mar	0	0	0	0
TinyTapeworms	Apr	6	463	75	4,659
TinyTapeworms	May	7	559	134	6,409
TinyTapeworms	Jun	10	1,000	97	10,661
TinyTapeworms	All	28	2,282	320	24,397
TinyTuxies	Jan	8	832	340	11,737
TinyTuxies	Feb	5	466	122	5,374
TinyTuxies	Mar	1	59	24	1,216
TinyTuxies	Apr	2	118	156	2,075
TinyTuxies	May	3	272	98	3,819
TinyTuxies	Jun	3	368	189	4,949
TinyTuxies	All	22	2,115	929	29,170
Grandpa Mason	Jan	14	3,275	1,767	55,512
Grandpa Mason	Feb	10	3,120	2,717	45,332
Grandpa Mason	Mar	9	2,826	1,954	38,487
Grandpa Mason	Apr	5	1,036	761	18,953
Grandpa Mason	May	8	3,656	3,527	49,879
Grandpa Mason	Jun	16	5,259	8,770	96,757
Grandpa Mason	All	62	19,172	19,496	304,920
TinyKittens	Jan	7	2,736	5,925	44,817
TinyKittens	Feb	11	1,295	2,403	32,124
TinyKittens	Mar	12	3,551	3,459	47,428
TinyKittens	Apr	32	9,525	14,430	157,937
TinyKittens	May	40	16,123	27,334	270,302
TinyKittens	Jun	29	15,036	23,610	198,661
TinyKittens	All	131	48,266	77,161	751,269

Figure 51: The number of posts, comments, shares, and reactions for each official TinyKittens Facebook page by month.

Figure 51 shows the number of posts, comments, shares, and reactions by month and by page. According to this figure, TinyTapeworms was the only page to go one month without a post: March 2018. All other pages had at least one post per month during the study period. It is also interesting to note that when the TinyKittens Facebook page is posting less, the TinyTuxies and Grandpa Mason pages are posting more. This could be because Shelly wants to keep TinyKittens online community members engaged, so when there is not much activity to report via TinyKittens, she finds more reasons to post activity on TinyTuxies and Grandpa Mason. This makes further sense when you consider that if there is less going on at the TinyKittens Society, Shelly would have more time to play, observe, and post about her own cats (TinyTuxies) and Grandpa Mason.

Page	Month	Avg Comments per Post	Avg Shares per Post	Avg Reactions per Post	Page	Month	% of Posts with Emojis	% of Posts with Photos	% of Posts with Videos	% of Posts with URLs	% of Posts with Shares
TinyTapeworms	Jan	88	4	630	TinyTapeworms	Jan	100%	100%	0%	0%	0%
TinyTapeworms	Feb	43	3	510	TinyTapeworms	Feb	100%	50%	50%	0%	0%
TinyTapeworms	Mar				TinyTapeworms	Mar					
TinyTapeworms	Apr	77	13	777	TinyTapeworms	Apr	33%	67%	17%	17%	0%
TinyTapeworms	May	80	19	916	TinyTapeworms	May	43%	71%	29%	0%	0%
TinyTapeworms	Jun	100	10	1,066	TinyTapeworms	Jun	60%	90%	10%	0%	0%
TinyTapeworms	All	82	11	871	TinyTapeworms	All	57%	75%	21%	4%	0%
TinyTuxies	Jan	104	43	1,467	TinyTuxies	Jan	63%	0%	100%	0%	0%
TinyTuxies	Feb	93	24	1,075	TinyTuxies	Feb	60%	0%	80%	0%	20%
TinyTuxies	Mar	59	24	1,216	TinyTuxies	Mar	100%	0%	100%	0%	0%
TinyTuxies	Apr	59	78	1,038	TinyTuxies	Apr	100%	0%	100%	0%	0%
TinyTuxies	May	91	33	1,273	TinyTuxies	May	33%	0%	100%	0%	0%
TinyTuxies	Jun	123	63	1,650	TinyTuxies	Jun	33%	0%	100%	0%	0%
TinyTuxies	All	96	42	1,326	TinyTuxies	All	59%	0%	95%	0%	5%
Grandpa Mason	Jan	234	126	3,965	Grandpa Mason	Jan	93%	29%	43%	7%	21%
Grandpa Mason	Feb	312	272	4,533	Grandpa Mason	Feb	80%	20%	60%	10%	0%
Grandpa Mason	Mar	314	217	4,276	Grandpa Mason	Mar	78%	11%	78%	11%	0%
Grandpa Mason	Apr	207	152	3,791	Grandpa Mason	Apr	80%	0%	100%	0%	0%
Grandpa Mason	May	457	441	6,235	Grandpa Mason	May	75%	0%	100%	0%	0%
Grandpa Mason	Jun	329	548	6,047	Grandpa Mason	Jun	63%	0%	94%	0%	6%
Grandpa Mason	All	309	314	4,918	Grandpa Mason	All	77%	11%	76%	5%	6%
TinyKittens	Jan	391	846	6,402	TinyKittens	Jan	71%	0%	100%	0%	0%
TinyKittens	Feb	118	218	2,920	TinyKittens	Feb	100%	36%	64%	0%	0%
TinyKittens	Mar	296	288	3,952	TinyKittens	Mar	83%	8%	83%	0%	8%
TinyKittens	Apr	298	451	4,936	TinyKittens	Apr	84%	9%	84%	0%	6%
TinyKittens	May	403	683	6,758	TinyKittens	May	85%	5%	88%	0%	8%
TinyKittens	Jun	518	814	6,850	TinyKittens	Jun	69%	0%	93%	0%	7%
TinyKittens	All	368	589	5,735	TinyKittens	All	82%	8%	86%	0%	6%

Figure 52 [left]: The average number of comments, shares, and reactions per post for each official TinyKittens Facebook page by month.

Figure 53 [right]: The percent of posts that included each type of attachment for each of the official TinyKittens Facebook pages by month. Note that attachments are not mutually exclusive, one post can have more than one type of attachment.

Figure 52 shows the average number of comments, shares, and reactions per post for each of the four Facebook pages and each month. Not surprisingly, TinyKittens continues to have the highest numbers of the four pages. The Grandpa Mason and TinyKittens pages have very similar average comments per post, but the other averages differ quite a bit between the four pages.

Figure 53 shows the percent of posts that included certain types of attachments. Attachments included emojis (or emoticons), photos, videos, URLs, and shared posts. Videos were the most frequently attached item to a TinyTuxies and TinyKittens post. Photos were the most frequently attached item to a TinyTapeworms post. And emojis were pretty much tied with Videos for the most frequently attached item to a Grandpa Mason post. As with the other findings so far, none of this is surprising. Shelly is an excellent photographer and is often taking photos with either her smartphone or DSLR camera. And, she runs a 24/7 live video stream, which means she has a never ending supply of videos she can post.

However, it is interesting to note that many (but not all) videos are taken with her smartphone and not from the live video stream. Usually, the videos tend to be close-ups of funny or cute things that happened at a given moment. The fact that

TinyTapeworms has more photos than videos is also not surprising. Photos posted on TinyTapeworms are usually taken by medical personnel at the vet clinic before, during, or after a specific procedure; they are not usually photos taken by Shelly.

It is also not surprising that over half the posts on all four pages have an emoji or emoticon. From personal experience, I would find it more unusual if a post from Shelly did not include an emoji.

Page	Month	# With Text	# Without Text	# with Emojis	% of Comments with Text	% of Comments without Text	% of Comments with Emojis
All Pages	Jan	6,612	319	2,206	95%	5%	32%
All Pages	Feb	4,752	301	1,593	94%	6%	32%
All Pages	Mar	5,999	437	1,829	93%	7%	28%
All Pages	Apr	10,522	620	3,317	94%	6%	30%
All Pages	May	18,687	1,923	7,060	91%	9%	34%
All Pages	Jun	20,228	1,435	7,051	93%	7%	33%
All Pages	All	66,800	5,035	23,056	93%	7%	32%

Page	Month	# With Text	# Without Text	# with Emojis	% of Comments with Text	% of Comments without Text	% of Comments with Emojis
TinyTapeworms	All	2,197	85	676	96%	4%	30%
TinyTuxies	All	2,067	48	677	98%	2%	32%
Grandpa Mason	All	17,797	1,375	6,540	93%	7%	34%
TinyKittens	All	44,739	3,527	15,163	93%	7%	31%
All Pages	All	66,800	5,035	23,056	93%	7%	32%

Figure 54: The number of comments that included text and/or emojis by official TinyKittens Facebook page and by month.

Figure 54 shows the number of comments posted to the four official Facebook pages that included either text or an emoji (or emoticon). Between 91% and 98% of the comments on all four pages and all six-months included text: meaning that almost all the comments included some form of textual message. And between 28% and 34% of the comments included an emoji (or emoticon), meaning that a little over a quarter of the comments included a non-textual message. Admittedly, based on my personal experience, I found the percentage of comments with text to be higher than I anticipated, maybe because comments with only emojis or stickers are more memorable.

Page	Month	# with Photos	# with Videos	# with Stickers	# with GIFs	# with Shared URLs	% of Comments with Photos	% of Comments with Videos	% of Comments with Stickers	% of Comments with GIFs	% of Comments with Shared URLs
All Pages	Jan	149	5	169	27	3	2.15%	0.07%	2.44%	0.39%	0.04%
All Pages	Feb	99	7	146	29	10	1.96%	0.14%	2.89%	0.57%	0.20%
All Pages	Mar	45	2	125	18	15	0.70%	0.03%	1.94%	0.28%	0.23%
All Pages	Apr	170	10	329	36	12	1.53%	0.09%	2.95%	0.32%	0.11%
All Pages	May	154	13	699	106	6	0.75%	0.06%	3.39%	0.51%	0.03%
All Pages	Jun	156	11	741	144	6	0.72%	0.05%	3.42%	0.66%	0.03%
All Pages	All	773	48	2,209	360	52	1.08%	0.07%	3.08%	0.50%	0.07%

Page	Month	# with Photos	# with Videos	# with Stickers	# with GIFs	# with Shared URLs	% of Comments with Photos	% of Comments with Videos	% of Comments with Stickers	% of Comments with GIFs	% of Comments with Shared URLs
TinyTapeworms	All	25	2	51	7	2	1.10%	0.09%	2.23%	0.31%	0.09%
TinyTuxies	All	33	1	29	4	2	1.56%	0.05%	1.37%	0.19%	0.09%
Grandpa Mason	All	174	16	508	95	13	0.91%	0.08%	2.65%	0.50%	0.07%
TinyKittens	All	541	29	1,621	254	35	1.12%	0.06%	3.36%	0.53%	0.07%
All Pages	All	773	48	2,209	360	52	1.08%	0.07%	3.08%	0.50%	0.07%

Figure 55: The number of comment attachments, by type, by official TinyKittens Facebook page and by month.

Figure 55 shows the number and percentage of comments which include some form of attachment. Attachments to comments can be photos, videos, stickers, GIFs, or a URL. Stickers are the most frequently used attachment for comments; a type of attachment that is not even available for a post. This is not surprising because many TinyKittens online community members use stickers to express a very specific sentiment, such as Power of the Paw. While members do occasionally use emojis to express the Power of the Paw sentiment, most members have taken to using the same two to three stickers to express this sentiment. I am also surprised by how infrequently photos are used and that stickers only make up about 3% of the comments, but again, it could be because they are more memorable.

5.2.1.2 *TinyKittens Unite Facebook Page*

Statistics from the TinyKittens Unite Facebook page required more work to calculate and may not be representative of the page as a whole. In total, 71 posts were collected (written by 62 different community members), plus 1,921 direct comments, 812 indirect comments, and 12,424 reactions. Because TinyKittens Unite is a closed group, the share function is disabled. This translates to 27 *direct* comments per post or 38 comments per post and 175 reactions per post. Due to the way this data was obtained, a breakdown of the reaction type was not possible. However, I could determine that 96% of the posts studied included text; 37% included emojis; 55% included a photo, video, or GIF; 3% were posts shared from another Facebook page; and 6% included a URL.

It is not surprising that the average number of comments and reactions per post is much less than the official Facebook pages. TinyKittens Unite has significantly more posts per day and month than any of the four official Facebook pages, therefore it would require a significant effort on the part of community members to respond to all the posts. As it is, 38 comments and 175 reactions per post is quite impressive considering TinyKittens Unite has significantly less followers than each of the four official Facebook pages. I believe it is safe to say that TinyKittens Unite members are quite active on Facebook.

As mentioned, 1,921 of the 2,733 comments were *direct*, meaning they were comments in response to the post. The remaining 812 comments were *indirect*, or comments to comments. From a coding perspective, the type of comment was not relevant. While the 71 posts included in the analysis had an average of 38 comments each, the actual range was between one and 205 comments. In addition, 89% of the comments included text (which is lower than the four official pages); 26% included emojis; 6% included a photo, video, or GIF; 6% included a sticker (which is higher than the four official pages); and 1% included a URL. The 11% of comments that did not include text usually included an emoji or a sticker instead. Therefore, a higher number of the comments on TinyKittens Unite had a non-textual message.

As I expressed earlier, I was surprised by the fact that the comments with stickers or emojis, to one of the official Facebook pages, was so low. The numbers for TinyKittens Unite are higher (in some cases, more than double) than the four official Facebook pages, which does make sense. With more posts to reply to on TinyKittens Unite, community members likely find it easier and faster to respond with an emoji or sticker, rather than text. I am a little curious if one of the reasons why more textual comments are found on the official Facebook pages is because community members want to be recognized by Shelly. They may have thought that a textual comment is more likely to get a reply than a non-textual comment. While Shelly rarely replies to comments on the official Facebook pages, it is likely that she reads a decent number of them. Since TinyKittens online community members treat Shelly as a quasi-celebrity, it would not be surprising if they were trying to impress her or feel that they have somehow reached out to her personally. The same cannot be said about TinyKittens Unite.

5.2.1.3 Conclusions

Without a qualitative analysis of the text written within each post and comment, I cannot say for certain the exact types of information being exchanged by TinyKittens online community members. However, I can infer what some of that information might be from these statistics. Some possible conclusions for the official Facebook page are as follows,

- Much more information is being exchanged on the TinyKittens Facebook page than any of the other official Facebook pages. And because this is the main Facebook page and tends to include information about the general happenings at TinyKittens, we can assume that Shelly shares more of this type of information than anything else.
- The low absolute numbers associated with TinyTapeworms, and the fact that this page is used only to share medically gross stuff, seems to indicate that while Shelly does share this type of information, it does not happen often. Plus, TinyTapeworms has the lowest membership of the four official Facebook pages.
- The fact that the number of posts, comments, shares, and reactions picks up in May and June of 2018, after the birth of three litters of kittens, seems to indicate that not only was this a busy time for TinyKittens, but that Shelly likely had more kitten-related information to share with the community. Kitten-related information could include birth announcements, name announcements, death announcements, funny antics and videos, posts about the importance of spaying and neutering, information as to the medical conditions of the kittens, etc.
- The fact that 93% of the reactions to all posts and pages over the six months were either Like or Love seems to indicate that TinyKittens community members either like or love the posts Shelly writes, which in turn likely means they Like or Love the things TinyKittens is doing and saying. The fact that another 5% of the reactions were HaHa or Wow, which I would consider positive reactions, backs up this conclusion.
- Only 2% of the reactions are Sad. And while the Sad reaction in general seems to imply a negative emotion, the negativity is not necessarily directed at

TinyKittens. From experience, I know that I have used the Sad reaction as a response to a death notice or a post explaining an illness of a kitten or cat, which I would consider a condolence rather than negative. The extremely low number of Angry reactions, which make up only 0.006% of all reactions, seems to back up the fact that the Sad reactions are likely not negative reactions, but sad reactions to a sad event or situation where the community member is trying to commiserate with Shelly.

Unfortunately, it is a little more difficult to draw similar conclusions about TinyKittens Unite, as I do not have the same detailed data. However, I can still infer the following conclusions,

- The fact that 71 posts were collected, which were written by 62 different people, seems to indicate that there is a decent variety of posters on TinyKittens Unite. Had those 71 posts been written by 15-20 different people, it might be an indication that only a small number of the same community members write posts again and again, but that does not seem to be the case.
- Because 96% of the posts on TinyKittens Unite included text, it is likely that the majority of posts on TinyKittens Unite have a textual message which is either seeking or sharing some form of information. The lack of posts with only photos, videos, or URLs seems to indicate that posters have a very specific purpose for writing a post and are likely looking for a response.
- The fact that there is an average of 38 comments per post and 175 reactions per post seems to indicate that TinyKittens Unite members are very active on the page, even though the number of posts per day is significantly higher than the official pages.
- The fact that 89% of the comments included text, making 11% of the comments include only a sticker or emoji, seems to indicate that members are looking for a slightly faster method for replying to TinyKittens Unite posts, possibly because they want to have time to reply to more posts.
- Because 26% of the comments included emojis, this seems to indicate that a quarter of community members prefer to express emotions using emojis rather than words. This could be because it is faster, but may also be because they find it difficult to come up with the appropriate words to use. For example,

they may want to show their love for another community member and feel that the heart emoji (or Love reaction) is more acceptable than using the word “love.”

5.2.1.4 Evidence for the Community-Based (Virtual) Human-Animal Bond

While this will be explored more in the next chapter, overall, I do not believe this is sufficient evidence to conclude the community-based (virtual) human-animal bond exists. However, from the absolute and average numbers of the various Facebook activities outlined, there does seem to be some compelling evidence in the direction of a community-based *something*. This is a group of people who interact, share, react, comment, etc., to each other frequently. I find it hard to believe that so many individuals would spend their valuable time doing this if they only had negative intentions. The types of reactions used seem to indicate that these interactions are almost entirely positive.

5.2.2 Coding Counts

Once the qualitative coding was completed, a count of all the codes used was calculated. Those counts can be found in Figures 56 and 57. These codes were used to code 243 posts from Shelly, 71 posts from TinyKittens Unite, 742 comments from the four official Facebook pages, and 2,733 comments from TinyKittens Unite. That is a total of 314 posts and 3,475 comments.

Attribute Codes			Emotion Codes			Descriptive Codes Shelly's Posts			Descriptive Codes Comments to Shelly's Posts		
Code	Count	Percentage	Code	Count	Percentage	Code	Count	Percentage	Code	Count	Percentage
Age*	3	1%	Acceptance	12	0%	Adoption	35	6%	Critical	1	0%
Cats > Foster	9	3%	Admiration	468	12%	Advertisement	116	19%	Funny	79	8%
Cats > Owned	136	46%	Angry	27	1%	Advocating	26	4%	Gratitude	69	7%
Cats > Stray_Feral	10	3%	Anxious	101	3%	Announcement	137	23%	Observation	261	28%
Employment*	4	1%	Bored	0	0%	Entertainment	46	8%	Personal Story	19	2%
Family Situation*	6	2%	Calm	0	0%	Explanation	181	30%	Prayer	4	0%
Gender*	1	0%	Confident	137	4%	Funny	29	5%	Question	33	3%
Geographic Location	56	19%	Curious	109	3%	Request	4	1%	Sharing with FB Friends	66	7%
Med Cond > Cat	53	18%	Determined	22	1%	Thank You	24	4%	Simple Comment	17	2%
Med Cond > Family*	6	2%	Disappointed	13	0%	TOTAL	598	100%	Suggestion	68	7%
Med Cond > Follower	12	4%	Disgusted	2	0%				Supportive	332	35%
TOTAL	296	100%	Excited	108	3%				TOTAL	949	100%

Process Codes			Descriptive Codes TKU Posts			Descriptive Codes Comments to TKU Posts		
Code	Count	Percentage	Code	Count	Percentage	Code	Count	Percentage
Adopting	6	9%	Announcement	17	7%	Advice	244	7%
Advising	0	0%	Criticism	1	0%	Answer	251	7%
Communicating	1	2%	Educational	1	0%	Apology	10	0%
Donating	0	0%	Entertainment	15	6%	Critical	10	0%
Educating	8	12%	Explanation	19	8%	Emoji Only*	60	2%
Entertaining	0	0%	Funny	10	4%	Explanation	171	5%
Fostering	19	29%	Gratitude	19	8%	Follow-up Questions	125	4%
Fundraising	1	2%	Personal Story	61	24%	Funny	150	4%
Helping	7	11%	Question	7	3%	GIF Only*	0	0%
Learning	4	6%	Request	22	9%	Gratitude	231	7%
Listening	0	0%	Update in Post	37	15%	Observation	280	8%
Observing	1	2%	Warning	0	0%	Personal Story	324	9%
Relaxing	4	6%	SUBTOTAL	209	84%	Photo Only*	81	2%
Rescuing	5	8%	Sticker Included	0	0%	Power of the Paw	308	9%
Stress Relieving	2	3%	Photo Included	41	16%	Request	33	1%
Supporting	1	2%	Video Included	0	0%	Sharing with TKU Members	7	0%
Volunteering	7	11%	TOTAL	250	100%	Statement	56	2%
						Sticker Only*	161	5%
						Supportive	922	26%
						Video Only*	0	0%
						SUBTOTAL	3,424	97%
						Sticker Included	8	0%
						Photo Included	93	3%
						Video Included	0	0%
						TOTAL	3,525	100%

Figure 56: List of the Attribute [first column], Process [first column], Emotion [second column], and Descriptive [third and fourth columns] Codes used in the coding analysis, including the number of times each code was used and the percentage of each code group that usage represents.

Values Codes		
Code	Count	Percentage
Attitude	15	13%
Belief	47	40%
Value	56	47%
TOTAL	118	100%

Figure 57: A list of the Values Codes used in the coding analysis, including the number of times each code was used and the percentage of each code group that usage represents.

5.2.2.1 Attribute Codes

While the 11 attribute codes were used 296 times during coding, only three were used frequently. The most frequently used code was for *Cats > Owned*, which meant that a community member likely referred to a pet cat of theirs in a post or a comment. And *Med Cond > Cat* means some of the community members who talked about their pet cats also mentioned some medical issue that cat had. In general, that is not surprising, but does not seem to happen frequently enough to use for any further analysis.

The *Geographic Location* code was used 56 times (and likely only once per post or comment), but out of more than 3,000 posts and comments (excluding Shelly's posts), a location was not mentioned very often. Again, this does not seem to happen frequently enough to engage in further analysis.

5.2.2.2 Process Codes

At a high-level, I was disappointed in the number of times a Process Code was applied. I created these codes because, from experience, I had often seen TinyKittens online community members talk about the types of activities they were doing *because* of the influence they received from TinyKittens. One possible reason for the low code count is the fact that these only account for 1% of the total comments from the four official Facebook pages. Is it possible that these items were discussed, but maybe not in the first few comments, meaning I missed the more appropriate comments? In order to check into this, I used a search query in NVivo to look for specific words in the full data set of comments. The search words were the process codes themselves, plus other words that may be used to express the same meaning. These findings will be discussed in Section 5.3.1.

5.2.2.3 Emotion Codes

Emotion Codes were used 3,913 times, although two of the codes did not end up being used: Bored and Calm. In addition, several of the codes were used infrequently, but rather than be excluded, I opted to combine certain codes together and analyze them as a group, such as:

- Disappointed + Frustrated + Disgusted = 13 + 52 + 2 = 67
- Guilty + Regret = 3 + 6 = 9
- Horrified + Scared = 11 + 12 = 23
- Pity + Sympathy = 9 + 322 = 331
- Determined + Confident = 22 + 137 = 159

The grouping of these Emotion Codes did not change the top five Emotion Codes used, which were: *Happy*, used 992 times; *Love*, used 608 times; *Admiration*, used 468 times; *Hope*, used 439 times; and *Sympathy + Pity*, used 331 times. All Emotion Codes

in the top five are positive emotions that tend to portray something good on the part of the person expressing them.

When the negative emotions were reviewed, I found the following: *Angry*, used 27 times; *Anxious*, used 101 times; *Disappointed + Frustrated + Disgusted*, used 67 times; *Horrorified + Scared*, used 23 times; *Guilty + Regret*, used nine times; *Jealous*, used two times; *Helpless*, used 22 times; and *Sad*, used 262 times. Together, negative emotions account for 513 codes used, which is only 13% of all Emotion Codes used. It could be argued that the *Sad* and *Helpless* codes are not negative emotions. As with reactions on Facebook, a *Sad* code could represent a community member expressing condolences for something sad that has happened. And the *Helpless* code could be in reference to a funny situation or be stated in a sarcastic way. Regardless, even if these 12 negative emotions codes are added together, they would only place third in the top five most used Emotion Codes. If all the positive emotions are added together (at 3,400), they would outweigh the negative emotions by almost seven times.

Emotion Codes are a good example of codes that should be investigated further, regardless of how often they were used. On the one hand, an infrequently used Emotion Code could mean the emotion was rarely expressed and not generally felt amongst TinyKittens online community members. On the other hand, a deeper dive into the context surrounding an infrequently used code might identify a specific emotion only used in specific situations, which may not have happened very often during the study period.

In addition to diving deeper into each code, it would also be interesting to do a similar search with Emotion Codes as I did with Process Codes. For example, is *Happy* still the most frequently expressed emotion when it is searched for in 100% of the comments to the four official Facebook pages? Does a negative emotion show itself more frequently when more comments are included?

5.2.2.4 Descriptive Codes

As can be seen in Figure 56, Descriptive Codes were divided into four groups: Shelly's Posts, Comments to Shelly's Posts, TKU Posts, and Comments to TKU Posts. This was done because there is a reasonable difference between the information exchanged within these groups. For example, while both Shelly and someone on TinyKittens Unite might post an announcement, the purpose and content of the

announcement are quite different. Therefore, in order to easily look at the four groups separately, the codes were grouped in NVivo.²⁰

In total, 598 codes were used to code 243 posts from Shelly; 949 codes were used to code 742 comments to Shelly's posts; 250 codes were used to code 71 posts from TinyKittens Unite; and 3,525 codes were used to code 2,733 comments to TinyKittens Unite posts. This means that, on average, 2.5 codes were used for each of Shelly's posts, 1.3 codes were used for each comment to Shelly's posts, 3.5 codes were used for each post on TinyKittens Unite, and 1.3 codes were used for each comment to a TinyKittens Unite post. In other words, a lot more information was exchanged in a post than in a comment. This is not surprising because, in general, posts tend to be longer. And some comments contain only emojis, stickers, photos, etc., which likely only represents one type of information exchange.

It is important to point out that the *Explanation* code was used in three of the four groups, as almost every post and comment included at least one sentence where the author explained something in more detail or provided more context. Most of the time, the *Explanation* code was only used once per post or comment, therefore we can say that 181 of Shelly's 243 posts (or 74%) included some sort of explanation, 19 of the 71 posts (or 27%) from TinyKittens Unite included some sort of explanation, and 171 of the 2,733 comments (or 6%) on TinyKittens Unite included some sort of explanation. This means that Shelly did the most amount of explaining, while community members commenting on a TinyKittens Unite post did very little explaining.

The *Explanation* code was not needed for comments to Shelly's posts, which means community members never explained anything when commenting on Shelly's posts! This is actually not an exaggeration. Shelly's posts (from the study period) never asked a direct question and rarely requested anything (2% of posts), therefore, comments to Shelly's posts did not require much in the way of explanation. On the other hand, TinyKittens Unite posts often asked a question or made a request (41% of posts), likely requiring commenters to explain an answer or advice they were providing.

20. Technically, a query in NVivo could have been used to display the results of only certain data sources. But I found it easier and faster to separate the codes themselves, rather than have to sort the data after the coding was complete.

Aside from the *Explanation* code, the most frequently used Descriptive Codes for Shelly's posts were *Advertisement* and *Announcement*. Since the *Advertisement* code was used whenever Shelly mentioned one of her websites, and she provides those websites frequently, this is not a surprise. The fact that *Announcement* is the next most frequently used code after *Explanation* makes sense, because Shelly's "job" is to use the official Facebook pages to share information about ongoing activities and events at TinyKittens. I did find it interesting that the *Funny* code was only used 29 times, as, from experience, my recollection is that her posts are frequently funny or sarcastic. But as with past conclusions, maybe they are just more memorable.

The most frequently used codes in comments to Shelly's posts were *Supportive*, followed by *Observation*. *Supportive* was used whenever a community member stated something that could be interpreted as supportive of whatever Shelly posted. *Observation* was used to code any phrase or sentence where a community member pointed something out, noticed something, or maybe even stated the obvious. The *Observation* code was important because it helped distinguish comments where a general statement was made versus comments with more purpose (e.g., *Funny*, *Gratitude*, *Supportive*, etc.). These top two codes seem to imply that community members are often drawn to provide Shelly with some sort of positive, supportive comment in relation to something she has posted. Or, they simply feel the need to say something, even if what they say is not overly useful.

The most frequently used code in TinyKittens Unite posts was *Personal Story*, which was used 61 times (likely once per post), which means it was used for 86% of the posts. Based on the purpose of the TinyKittens Unite Facebook page and the nature of the TinyKittens online community, the fact that most posts include some sort of personal story or anecdote is not surprising. This finding continues to provide evidence for a community-based *something*. For community members to be sharing personal information this often, there must be some level of trust occurring within the community. From my personal experience, I believe that these personal stories are true and not fictional.

The most frequently used code in the comments to a TinyKittens Unite post was *Supportive*, used 922 times. I do not think it is a coincidence that the most frequently used code in both comment groups is *Supportive*. I think this provides more evidence towards a community that is truly beneficial to its members. Interestingly, the next

most frequently used code is *Personal Story*. It is not only the most frequently used code in TinyKittens Unite posts, it is also frequently used in TinyKittens Unite comments. This seems to imply that not only do community members share personal information when writing a post, they often respond to posts using personal information.

Conducting a deeper dive on the specifics of what was said in the posts and comments for each Descriptive Code should reveal even more evidence in favour of not just something community-based, but also evidence of the human-animal bond.

5.2.2.5 Values Codes

At this point, it is difficult to make solid conclusions from the counts of the three Values Codes. To truly understand the values, attitudes, and beliefs being expressed by members of the TinyKittens online community, the text needs to be reviewed. What I can say at this point is that these codes were not used as often as I was expecting. Only 118 times over 3,789 posts and comments, which is 3%. The deep dive in the next section will provide more details on what values were expressed.

5.2.2.6 Evidence for the Community-Based (Virtual) Human-Animal Bond

First and foremost, these numbers indicate that the TinyKittens online community, represented by these specific Facebook pages, expresses emotions frequently. And that the positive emotions they express outnumber the negative emotions by almost seven to one. This alone seems to indicate that something good is coming out of this community and that the community members likely rely on each other for these positive emotions.

Add to this conclusion the fact that the most frequently used Descriptive Codes relate to personal information and supportive comments, and you can start to see the evidence piling up in favour of a community-based (virtual) human-animal bond. The qualitative analysis in the next section will provide, what I will call, concrete evidence that this is not just a supportive community, but that the human-animal bond is the reason for that supportive community.

5.3 The Deep Dive: Coding Review

The big picture is a great way to look at the findings in order to identify areas that require further analysis. However, the lack of big picture data does not necessarily equate to an area for which further analysis is not required. An area with a lack of data may reveal just as much information as an area with an extensive amount of data. From a big picture perspective, this means codes used infrequently may need as much of a deep dive as codes used frequently. Is it possible that specific codes were not used often because the item the code represented rarely happened? In which case, is the lack of that item an important finding? Or, is the lack of that item simply an indication the item is not applicable, necessary, or significant? The only way to know the answers is to conduct a deep dive of those codes from a qualitative perspective. To look not only at the types of information exchanged, activities discussed, or emotions expressed, but to also look at *why* the information was exchanged, the activities were discussed, and the emotions were expressed.

5.3.1 Process Codes

The purpose of the Process Codes was to determine the types of activities discussed by the members of the TinyKittens online community. These activities not only add to the answer regarding the type of information exchanged by community members, but also provide an insight into the types of activities members themselves are performing in their own lives (and small worlds). In some cases, these activities are only taken on by community members because of their membership in the TinyKittens online community. What they have seen, read, and heard on TinyKittens has likely influenced them, encouraged them, and given them the confidence to try new activities related to cat and kitten rescue.

5.3.1.1 Search of the Full Data Set

The Process Codes were used 66 times during the coding process. During the manual coding process, Process Codes were used for comments and TinyKittens Unite posts as I was interested in the community members that were *influenced*, not the member (i.e., Shelly) doing the *influencing*. As mentioned in Section 5.2.2, I do not believe these codes were used often enough for definitive conclusions to be drawn. Therefore, for

the deep dive, I took the extra step of using an NVivo search query to look for Process Codes in the full data set (all posts and all comments). And in addition to searching for the words used as Process Codes, I added related words to the search. Figure 58 provides the list of words used in the search, as well as how many times each group of words appeared in each set of posts or comments.²¹

Code	Coded Count	Search Terms	Shelly's Posts	Comments to Shelly's Posts	TKU	TOTAL
Adopting	6	adopt, adopted, adopting	75	658	29	762
Advising	0	advise, advised, advising, advice	3	30	23	56
Communicating	1	communicate, communicated, communicating	0	2	1	3
		told, explained, discussed, explain, tell, discuss, telling, explaining, discussing	9	450	75	534
Donating	0	donate, donated, donating	6	54	5	65
Educating	8	educate, educated, educating, taught, teach, teaching	6	196	16	218
Entertaining	0	entertained, entertain, entertaining	4	19	3	26
		fun, funny, enjoy, enjoyed, enjoying	13	780	30	823
Fostering	19	foster, fostered, fostering	14	369	49	432
Fundraising	1	fundraise, fundraised, fundraising	0	3	2	5
Helping	7	help, helped, helping	48	1,270	136	1,454
Learning	4	learn, learned, learning	13	255	15	283
Listening	0	listen, listened, listening	0	60	16	76
Observing	1	observe, observed, observing, watch, watched, watching	27	1,576	52	1,655
Relaxing	4	relax, relaxed, relaxing	1	121	3	125
		calm, calmed, calming	2	80	9	91
Rescuing	5	rescue, rescued, rescuing	37	520	35	592
Stress Relieving	2	relief, relieved, relieving	7	111	9	127
		stress, anxiety, anxious, nervous	4	86	26	116
Supporting	1	support, supported, supporting	17	139	27	183
Volunteering	7	volunteer, volunteered, volunteering	6	55	10	71

Figure 58: Process Code-related search terms used in an NVivo search query, including the number of times each group of words was found by data set.

As Figure 58 shows, the most frequently found set of words was for the *Observing* code and the majority of these words were found in comments to Shelly’s posts. It is highly likely that these references were about observing or watching the live video stream or a video from Facebook, as opposed to observing something in the real world. The *Helping* code was the second most frequently found set of words, followed by *Entertaining*. A look at the specific sentences where these words were used will be needed to determine the context during which these word groups are commonly used.

The word groups that interest me the most are *Adopting*, *Donating*, *Fostering*, *Rescuing*, and *Volunteering*, as these activities imply that the community member is referring to specific activities associated with cat rescue. These word groups appear a total of 1,922 times through all the posts and comments. When you consider that, if a community member is talking about a rescue activity they are performing in real life, they are not likely to talk about it over and over again, and that it would likely only

21. While the TinyKittens Unite posts and comments were searchable, the posts and the comments were contained in the same file. Therefore, it was not possible to distinguish between a word found in a post versus a word found in a comment (without significant manual intervention).

come up in a post that is related to a similar activity, having these types of activities mentioned over 1,000 times in the data set seems to be an intriguing finding.

The other word groups that interest me are *Relaxing* and *Stress Relieving*, as, to me, these activities relate more to a benefit from being a member of the TinyKittens online community, as opposed to a direct activity being performed. These words appear in the complete data set a total of 459 times. While not as frequent as the activities mentioned in the previous paragraph, it is still an interesting finding. Of these 459 occurrences, the 14 mentioned in a post by Shelly can probably be excluded, as again, I would like to focus on the *influenced* community members.²²

5.3.1.2 Observing

As expected, when the full phrase or sentence in which a word from the *Observing* word group appears is analyzed further, the observation in question tends to be related to the author watching the live video stream, not observing or watching an activity in real-life. Examples²³ from comments to Shelly's posts are as follows,

- Love watching her knead her lion as Grandpa snuggles her!
- Love watching these sweet kitties!
- Hehehe...Shelly, got to watch you extracting Mason yesterday
- My heart ached for Grandpa Mason when he watched his kittens leave yesterday.

Examples from comments to TinyKittens Unite posts are as follows,

- Love watching Chapel and all his healthy man-catness,
- I know he will be happy to go, but I'm really going to miss watching him exhibit his adorable belly!
- He is such a character, just watching him sleep is comical.
- I don't think I can watch him go.

22. It could be argued that Shelly's feelings are just as important as any other member of the TinyKittens online community. However, two issues come to mind when looking at Shelly's posts. One, it is more likely that words mentioned in a post written by Shelly are in reference to the community and not herself. And two, it would be very difficult to determine which human-animal bond related emotions she experiences because of the online component of the community versus the emotions she feels physically taking care of and cuddling with the cats and kittens.

23. All examples provided here are copied exactly from the post or comment in which they were written. Spelling, grammar, and punctuation have not been changed. However, in some cases, only a portion of the post or comment is displayed.

5.3.1.3 Adopting

Due to the fact that TinyKittens is a cat rescue organization, one of their main goals is to get their cats and kittens adopted. Therefore, it is likely that the words in the *Adopting* word group were used in reference to the cats and kittens at TinyKittens. As an example, Shelly often posted about the cats and kittens available for adoption on the official TinyKittens Facebook pages. And Shelly often included the URL for the adoption application in those posts (which has the word adopt in it). However, many of the comments to Shelly's posts and both posts and comments on TinyKittens Unite do include words from the *Adopting* word group that are in reference to community members' adopting cats or kittens of their own. Examples of these type from comments to Shelly's posts are as follows,

- *I only adopt old cats . Most current is abandoned 19 year old Augustus. Our 20 month old twins super love him but he's terrified of them even though we've taught them to be very gentle. We working slowly on this. He's an old smooch machine otherwise and we love him.*
- *This is our feral boy, Stripy. We adopted him after we saw him on the news- someone had shot him in the head and he survived.*
- *My sister adopted a cat who had been declawed, then dumped in the middle of a Texas panhandle blizzard. Abbey had a massive abcess on her face and was nearly starved. Lots of vet care, good food & security resulted in Abbey becoming the queen of the house.*
- *Because of TK we adopted a shelter cat. I learned a lot watching and loving Evo, Corsi and all that came after.*

Examples from TinyKittens Unite posts are as follows, and are often included in a post because the community member is asking for advice regarding the adopted cat or kitten.

- *My husband and I adopted a cat from the humane society about month and half ago.*
- *I just adopted a kitten that was dropped off at the river with her brothers .*
- *The kittens will be up for adoption when they are ready. So anyone in the Ottawa/Russell area wanting to adopt, stay tuned!*

Finally, the following includes examples from the comments to TinyKittens Unite posts,

- *this is my new babies. Maddie, adopted a couple weeks ago*
- *A year ago I adopted two semi-ferals of my own.*
- *I am not in a position to foster so I tried to do my TinyKittens part by adopting a feral kitten who was rescued when she was 4 months old. Josie is a sweetheart but I would have never opened my heart to her without the knowledge I have learned from Shelly and the TinyKittens Village.*

5.3.1.4 Donating

When I looked closer at the context in which words from the *Donating* word group are used, I found that in most cases community members were referring to financial donations they have made or would like to make. However, I also discovered that the financial donations referenced were usually towards TinyKittens, as opposed to a cat rescue in their own community. Examples from the *Donating* word group in comments to Shelly's posts are as follows,

- *This is why you are one of my favorite sites, if I could I would donate a fortune to your shelters for you people are true angels on this Earth.*
- *how can I donate? are you on Canada helps?*
- *Financially I can't donate, but you and the volunteers, vets and of course the kitties are in my daily prayers.*
- *Patty you can find a local shelter in your area or see if there is a local TNR group that needs help, or donate to a local group. I would love to help TK out, but I live on the East Coast, Us, and money wise it has to go to my colony and my local rescues, Last Chance Ranch, No None Sense Neutering, Peaceful Kingdom, and Animal Lifeline who over the years were a big help with speutering on our ferals. And just spreading the word of spaying and neutering, adopt don't shop spreading TK's message is the biggest help you and all of us can do. Happy New Years.*

Example from the *Donating* word group in a post on TinyKittens Unite are as follows,

- *Thank you to all our members and donors and the tiny village who have purchased from the TKU Market over the past month, and to all those who have donated items for us to sell or include in Auction Baskets and Raffle Prizes. Also a big thank mew to our TKU Market crafters for their gorgeous handcrafted items.*

5.3.1.5 *Fostering*

When I looked at the context in which words from the *Fostering* word group were used, I found a couple interesting things. In some cases, the community member is referencing a foster experience they have had or are having. But, many of the comments to Shelly's posts on the Grandpa Mason Facebook page seem to be in reference to *Grandpa Mason* fostering kittens, rather than the community member. This is not surprising as Grandpa Mason is seen as the grandfather to all kittens who come through TinyKittens and he takes care of them until they find forever homes. In effect, he is fostering those kittens! Examples from comments to Shelly's posts on the Grandpa Mason Facebook page are as follows,

- *I'm so glad that Grandpa wants to foster and teach all the babies, that come in.*
- *Can't wait for his next fostering assignment!*
- *He's staying because he knows he has kittehs to foster.*
- *You mean Mason won't have any more kittens to foster?*

Examples from the *Fostering* word group in comments to Shelly's posts that are not in reference to Grandpa Mason,

- *I foster newborn orphans so I see a fair number of my babies go to the bridge, some within hours of arriving.*
- *Wish I could foster kittens - some day.*
- *When I use to foster I had a stern Siamese momma cat who would teach them manners and how to hunt.*
- *I fostered a cat a few years ago that had severe thyroid disease.*
- *I'm in Southeastern Ky (cat rescue coordinator and foster here) and we've had kitten season pretty much all year for the past year.*

Several of the 71 posts from TinyKittens Unite provided excellent examples of the context I was expecting to see for the *Fostering* word group. In these examples, two community members explicitly mention they (or someone they know) started fostering because of TinyKittens.

- *Since he's a foster I can't take him to the vet without approval from the shelter staff (unless it's a life or death emergency) and I'm waiting to hear back from one of them, but wondered if anyone here has experienced anything like this.*

- *Thanks to Shelly, FDJ, and the Kitten Lady, my mom started fostering for a rescue local to her.*
- *I started watching Tiny Kittens when Chloe and Ramona were brought in. I totally fell in love and it inspired me to foster! Yesterday, I picked up Princess and her 5 kittens and I can't stop smiling. Thanks Shelly and TK!*

5.3.1.6 Rescuing

As with *Fostering*, there does seem to be some differences in the way words from the *Rescuing* word group are used in comments to Shelly's posts as opposed to posts and comments from TinyKittens Unite. In comments to Shelly's posts (on all pages), words from the *Rescuing* word group were sometimes used to reference TinyKittens and/or a cat or kitten they have. In other words, TinyKittens is sometimes referred to as a *rescue organization* and their cats and kittens are sometimes referred to as *rescues*. However, not all comments to Shelly's posts used these words in reference to TinyKittens. There are plenty of examples where community members have used words from the *Rescuing* word group in reference to a cat or kitten they have rescued.

Examples of comments to Shelly's posts where the *Rescuing* word is referring to TinyKittens are as follows,

- *Being rescued and having this wonderful addition to his life at the end instead of suffering alone outside has made his story such a remarkable one. [Referring to Grandpa Mason.]*
- *Beautiful video... beautiful Tiny Kittens rescue organization... beautiful kittens and cats, all.*
- *I wonder why so many of the rescue cats have kidney problems? [Referring to the cats from the Happy Forest colony.]*

Examples of a *Rescuing* word being used in reference to something the community member has done are as follows,

- *Cedric(a feral rescue) wishes you all a Happy New Year!*
- *Maybe, but I like my cats fuzzy. And if I did get one, it'd have to be a rescue - I won't buy from a breeder, no matter how reputable.*
- *My cat had seven happy years after being rescued as a feral with stage 3 kidney failure.*

- *I was inspired to adopt two little rescued kittens. You have inspired so many people to care and to act upon their concerns in any way that they could- and we can all help in some way to make the world a better place for cats*
- *Today is my HoneyBoy's Birthday !! 11 years since I rescued him. Now 16 we think!!*

Posts and comments from TinyKittens Unite were slightly more consistent in terms of their context. In almost every case where a word from the *Rescuing* word group was used, it was in reference to something the community member had done. An example from a post on TinyKittens Unite is as follows,

- *Wanted to give an update on the mama cat and kittens we rescued from our office parking lot.*

And examples from comments to TinyKittens Unite posts are as follows,

- *the reason i just adopted Maddie was i just lost my Muffin to cancer a week before, something called me to the rescue league and there was Maddie.. I adopted muffin from there about 12 years ago.*
- *I rescued a 4-1/2 week old kitten with no momcat (dumped) 16 years ago, and doted on her (fortunately, I work from home), and she is still my baby. It is do-able, though not ideal.*

5.3.1.7 Volunteering

Similar to *Donating*, there were less than 100 examples of *Volunteering* words to review. However, the majority of comments that included a word from the *Volunteering* word group were specifically about an experience the community member had or was having at a rescue in their local area. Examples from the comments to Shelly's posts include,

- *I volunteer at Shelter to Home Animal Rescue (and pet adoption center) in Wyandotte, Mi. and I know,as I'm sure you do as well, from personal experience (and my own cats) that love, time, patience, and belief can accomplish so much.*
- *I volunteer for The Last Chance Cat Ranch Lethbridge and we have a fellow that is experiencing this very thing. With vet's approval we would like to try.*
- *I volunteer at a local animal shelter and know they are hard to come by.*

Several of the comments to a TinyKittens Unite post included mention of the fact that the community member started volunteering *because* they were a member of the

TinyKittens online community. Examples from comments to TinyKittens Unite posts are as follows,

- *Today was my orientation at my local animal shelter to become a volunteer...As a volunteer I want to do all I can to help the shelter, But I feel deep in my heart that the inspiration I have from Shelly and TinyKittens, I want to work with the tougher cases, kitties like the gorgeous little girl I met today, and I want to work with the special needs kitties too.*
- *Bless you!! I was also inspired by TinyKittens. I started watching with Evolene and Corsica last year and it inspired me to start feeding a feral colony in my town and volunteer with a local rescue, for which I foster also.*
- *Here are some cute pics I've taken since I've started volunteering there a couple months ago... and link to the shelter fo r those interested.*
- *the shelter I volunteer at has a program called Safe Harbor which provides temporary shelter for pets.*

5.3.1.8 Stress Relieving and Relaxing

When the context around the *Relaxing* word group are reviewed, a previously mentioned pattern continues: the various words associated with *Relaxing* in comments to Shelly's posts on the Grandpa Mason Facebook page are referring to Grandpa Mason himself. Many of the comments from community members indicate they have noticed how relaxed Grandpa Mason looks or how relaxed the kittens make Grandpa Mason. Some examples are as follows,

- *How's Grandpa's health. He's so relaxed with his babies*
- *Grandpa Mason is totally relaxed and taking all those little kitties in.*
- *Grandpa Mason looks so happy and relaxed surrounded by his beautiful students.*
- *He looks so relaxed and content*

References to Grandpa Mason are not the only times the words in the *Relaxing* word group are used. Comments to Shelly's posts also included many references to how a photo or video was relaxing to the community member. In many cases, watching Grandpa Mason relax made the community member feel relaxed as well! Examples are as follows,

- *sooooooo relaxing to watch*

- *I want to trade places with him. That looks so relaxing and having kittens around is heaven, in fact, having any cats around is heaven.*
- *My go-to relaxation video!*
- *I find it so relaxing to listen and watch cats eat or drink*
- *I'm so glad. The live feed has become my favorite thing to relax with*
- *Everybody looks so relaxed and comfortable, it makes me want a nap too lol*

A similar finding occurs with the words in the *Stress Relieving* word group. In some cases, community members are referring to a cat or kitten looking relieved. But in other cases, they are referring to themselves. Some examples are as follows,

- *others fo r the stress relieving puzzles. [In reference to online puzzles posted regularly on TinyKittens Unite.]*
- *The BEST stress reliever: watching kittens do kitten stuff. [Comment to TinyKittens post.]*
- *you all fo r providing stress relief [Comment to TinyKittens Unite post.]*
- *When I get stressed I go to your live feed on youtube and just relax, all the squeeks and purrs help my anxiety. [Comment to TinyKittens post.]*
- *I love the daily lean videos. It helped me get through a stressful day by thinking about it!! [Comment to a post on Grandpa Mason.]*
- *Thanks for always making me smile. I just love this ol' guy and he makes me smile and stop stressing! [Comment to a post on Grandpa Mason.]*

It is important, in the case of words like *relief* and *relieved*, to distinguish between a community member commenting on the emotion of being relieved versus the activity of relieving stress. In this situation, I was only looking for discussion of the activity, not the emotion. Due to this distinction, in most cases, the posts and comments had to be quite explicit.

5.3.1.9 Information Exchanged

These findings are quite encouraging with regards to my research questions. Many of the posts and comments coded with a Process Code were likely also coded with a Description Code. For example, when a TinyKittens online community member makes a comment about watching or observing something on the live video stream, I

would have coded it under *Observing*, but I would also have coded it as *Observation* under the Descriptive Codes.

First and foremost, TinyKittens online community members often exchange information about the things they have observed or things they have watched; in both cases, these things may be on TinyKittens or in their real lives.

Second, they also share information about cats and kittens they have adopted, rescued, or fostered (or someone they know who has adopted, rescued, or fostered). Many times, they share this information with comments that they adopted, rescued, or fostered a cat or kitten *because* of what they had seen on TinyKittens. And, many of the comments about adopting, rescuing, or fostering cats or kittens includes advice or suggestions about the topic. In other words, community members not only share information about their specific experiences, they share information about the things they learned from those experiences.

Third, many community members also share information regarding what they *wish* they could do, such as adopting, rescuing, fostering, or donating, but may not be able to do because of personal circumstances.

Finally, community members often share information about the ways in which TinyKittens provides them with some form of stress relief or relaxation. And, when they share information about being able to relax because of something TinyKittens has shown or done, they often thank TinyKittens for providing them with that opportunity.

5.3.1.10 Evidence for the Community-Based (Virtual) Human-Animal Bond

From a community perspective, these findings show that community members are often influenced by other community members, especially Shelly. They also seem comfortable sharing information about activities they perform in their personal lives, including *why* they started to perform those activities.

From a human-animal bond perspective, the fact that many community members find stress relief from watching TinyKittens is excellent evidence that being a member of the TinyKittens online community has its benefits. While I will not go into this in any quantitative detail, I have to assume that if community members *talk about* using TinyKittens for stress relief, then there must be community members who experience stress relief but just do not talk about it. Some of those members may be lurkers, but

they may also be participants who simply never mentioned it explicitly or their discussion of it was not captured in this data set.

5.3.2 Emotion Codes

Positive emotions were expressed seven times more often than negative emotions. The top two most frequently used Emotion Codes, *Happy* and *Love*, together outweighed all the negative Emotion Codes combined. In and of itself, I believe this to be a very significant finding.

In order to gain a better understanding of *why* TinyKittens online community members are experiencing and expressing these emotions, I reviewed the context surrounding the Emotion Codes. But, before I did that, I wanted to do a similar analysis as the Process Codes; use the search query function in NVivo to see how often certain emotions were discussed in the data set as a whole. Similar to the Process Codes, the search query will include all possible words that could have been used to describe each Emotion Code (which were also included in the codebook).

5.3.2.1 Search of the Full Data Set

Figure 59 lists all the Emotion Codes used in this study and how many times that code was used in the coding process (first two columns). It then lists all words that could be used (textually) to describe that specific emotion (third column) and how many times those words were found in each part of the full data set (remaining columns).

The most frequently used code was *Happy*, at 992 times. When the search query was used, words associated with happy were found 4,647 times (most often on the TinyKittens Facebook page and in the comments to Shelly's posts). Interestingly, the *Love* code was used 608 times during the coding process, but the search query found 11,440 uses of a love-related word in the full data set (mainly on the TinyKittens Facebook page and almost entirely in the comments to Shelly's posts). This means that overall, *Love* is the most frequently expressed emotion on TinyKittens, not *Happy*.

Code	Coded Count	Words	Grandpa Mason	TinyKittens	TinyTapeworms	TinyTuxies	TKU	Shelly's Posts	Comments to Shelly's Posts	TKU	TOTAL
Acceptance	12	accept, accepting, acceptable, acceptance	31	50	2	4	11	6	81	11	98
Admiration	468	admirable, admirers, admire, admiration	3	38	0	1	0	0	42	0	42
Angry	27	angry, hate(s), rage, mad, madness, madly, hateful, hated, hating, raging	45	98	8	11	20	0	162	20	182
		upset, upsets	6	11	1	1	9	0	19	9	28
Anxious	101	worried, stress, stressful, panic, worry, worries, stressing, anxiously, stressed, anxiety, nervous, stresses, anxious, worrying	95	262	26	16	73	13	386	73	472
		concern, concerned, concerns, concerning	17	54	4	4	9	4	75	9	88
Confident	137	confident, confidence	4	24	0	1	2	11	18	2	31
Curious	109	curious, curiosity	14	50	2	2	2	1	67	2	70
Determined	22	determine, determined, determination	12	62	0	3	5	3	74	5	82
Disappointed	13	disappoint, disappointed, disappointment	5	3	0	0	3	0	8	3	11
Disgusted	2	disgust, disgusted, disgusting, sicken	4	2	1	0	0	0	7	0	7
Excited	108	excited, exciting, excitement	30	135	5	9	6	11	168	6	185
		thrilled, inspiration, inspire, inspires, inspired, inspiring, inspirational, thrilling, thrill	37	191	5	0	18	18	215	18	251
Frustrated	52	annoying, annoyance, annoy, frustrating, frustrations, annoyed, frustrated, annoys	11	11	2	4	6	0	28	6	34
GUILTY	3	ashamed, guilty, guilt	3	3	0	0	1	0	6	1	7
Happy	992	happy, happiness	1,079	1,881	89	28	144	37	3,040	144	3,221
		glad, joy, joyful	375	812	107	8	124	1	1,301	124	1,426
Helpless	22	helpless, helplessly, powerless	0	11	0	0	3	0	11	3	14
Hope	439	hoping, hope, hopeful, encourage, hopefully, encouragement, encouraging, encouraged	546	1,761	145	28	188	56	2,424	188	2,668
Horrified	11	horrid, horrified, shock, shocked, horrific, horridly, shocking, hideous, shocks	11	16	1	2	6	0	30	6	36
Jealous	2	jealous, jealously, envy	6	37	0	8	5	0	51	5	56
Love	608	love, loves, loving, loved, lovely	4,093	6,623	190	317	217	68	11,155	217	11,440
Pity	9	pitiful, pity	3	4	0	1	0	0	8	0	8
Proud	49	proud, prides, pride	10	138	5	5	6	0	158	6	164
Regret	6	regret, regretted, regretting, regrets	0	3	0	0	4	0	3	4	7
Relief	52	ease, relieving, relieved, relieve, easing, alleviate, eases	11	63	8	0	9	4	78	9	91
Sad	262	depression, sad, sadness, sorrow, unhappy, sadly, grieved, grieves, grieve, grieving, depressed	76	343	15	4	45	2	436	45	483
Scared	12	fearful, distress, scared, scare, scaring, terrified, terrifying, fear, feared, fears, fearing, distressing, intimidated, scares, distressed, intimidating, intimidation	30	176	4	4	22	7	207	22	236
Surprise	68	surprised, surprising, amazingly, amazing, wow, amazes, surprise, amazed, amazement, amaze, surprised, surprises	433	1,466	104	42	84	21	2,024	84	2,129
Sympathy	322	sorry, sympathy	55	355	9	5	132	0	424	132	556
		RIP, condolence, condolences	9	127	1	2	19	0	139	19	158
Trust	5	trust, trusting, trusted	33	95	8	4	13	0	140	13	153

Figure 59: Emotion Code-related search terms used in an NVivo search query, including the number of times each group of words was found, by Facebook page and data set.

To go one step further, a search for the heart emoji (❤️) in the full data set resulted in 10,011 occurrences. This means that TinyKittens online community members expressed their love for something over 20,000 times in the full data set. It is important to note, however, that when a community member uses a heart emoji, they often use it more than once in a single post or comment. Therefore, even if I were to assume that every heart emoji was repeated three times, that would still be over 3,000 occurrences for just the emoji and almost 15,000 occurrences for the emoji and the words.

5.3.2.2 Emotional Context

Unlike Process Codes, where I could narrow down my analysis by using the results of the search query, I believe that the posts and comments associated with each Emotion Code need to be reviewed in more detail. Emotions that TinyKittens online


community members express frequently are important to look at, but so are emotions that they express infrequently. For example, *Guilty* and *Regret* were used a total of 13 times during the coding process. And *Horrified* and *Scared* were used a total of 23 times. Does this mean that these emotions are not expressed by community members because they do not feel the emotion? Or because the emotion only comes up under very specific circumstances? If they express one of these emotions, are they told to stop, which might explain the infrequency, or are they allowed to continue? These questions can only be answered by looking at the specific context in which each Emotion Code is found.


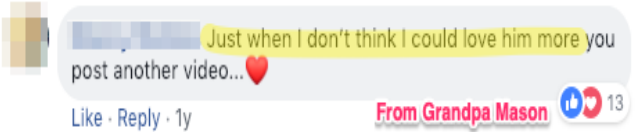
5.3.2.3 Positive Emotions

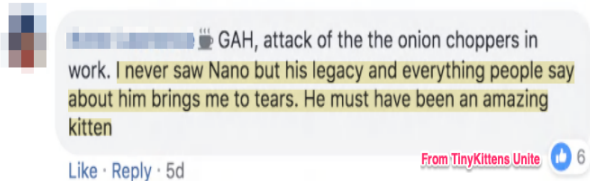
Table 8 lists all the positive Emotion Codes, in the order of how frequently they were used in the coding process. For each Emotion Code, an explanation of the general context in which these codes were found, as well as specific examples, are included.

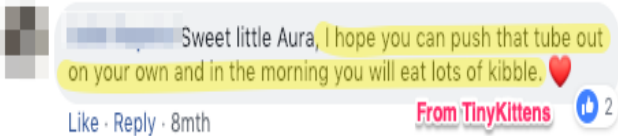
Table 8

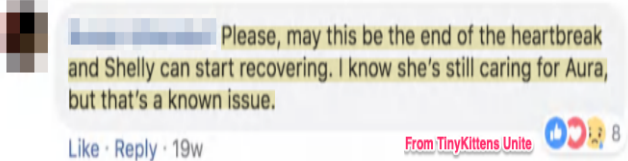
Explanations and Examples for Positive Emotion Codes

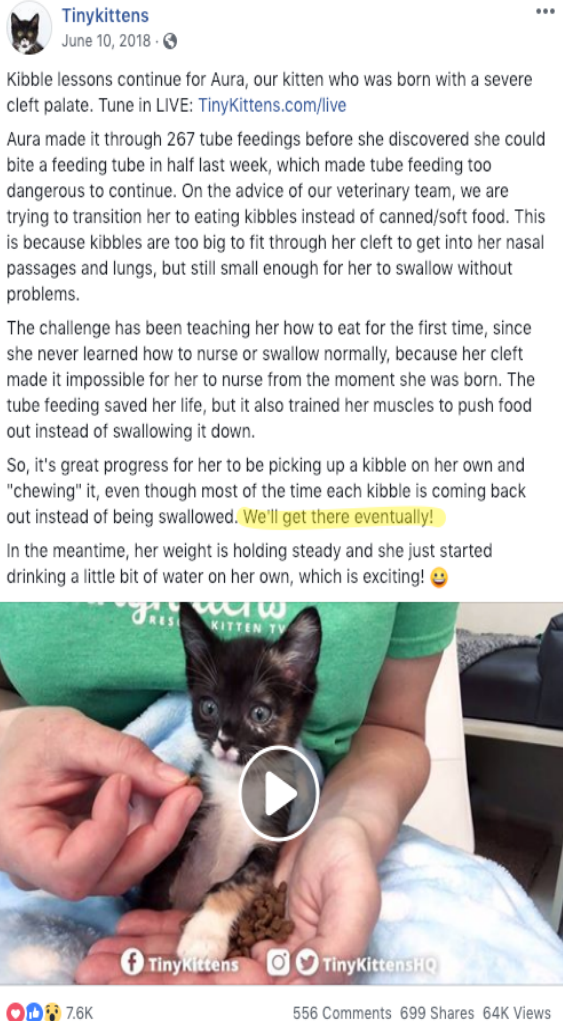
Emotion Code	Explanation	Example(s)
Happy (992)	<p>The <i>Happy</i> code was found in the following situations:</p> <ul style="list-style-type: none"> ◦ Jokes and sarcastic comments, almost exclusively about a cat or a kitten, usually based on something silly they did on the live video stream. ◦ Putting words into the mouth of a cat or kitten, or commenting on what they must be thinking. ◦ Comments about how good a cat or kitten looks (maybe because they have been ill) or what they are doing (such as they look more relaxed or comfortable). ◦ Comments about specific events that occurred on Facebook or the live video stream. ◦ Explicit statements where words like happy, glad, or joy were used. ◦ Sentences that ended in an exclamation point. ◦ Comments that included LOL, HAHA, XOXO, etc. ◦ Comments where the following words were used: <i>cute, adorable, awesome, precious, squee, amazing, yay, wonderful, sweet.</i> ◦ Comments about a cat or kitten being adopted, both from TinyKittens or by a member of the community. ◦ Funny stories about a community member's own cat and the goofy mischief they got into. ◦ Comments including gratitude, congratulations, support for someone, happy [birthday, Mother's Day, etc.], and wishing someone luck. <p>The following emojis were often found in a Happy comment: 🤔😄😂😍😺😸😹😻😼😽😾😿😾😿😾😿😾😿</p>	

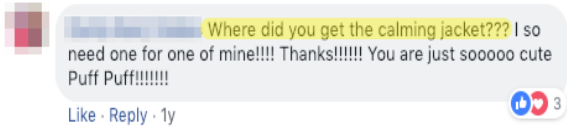

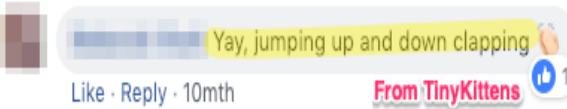
Emotion Code	Explanation	Example(s)
		
<p>Love (608)</p>	<p>The <i>Love</i> code was frequently found in the following situations:</p> <ul style="list-style-type: none"> ◦ Community members referencing that they love(d) a cat, kitten, event, item, the way something looks, how happy someone looks, something that someone has done, seeing a specific cat or kitten do something, etc. ◦ Explicit statements of love, such as: <i>I love Grandpa Mason</i> or <i>I love Puffs</i> or <i>I love him/her</i>. ◦ Comments where they anthropomorphize the cats, such as that one cat loves another cat, that a cat is looking at a human with love, or that a momma cat loves her kittens. ◦ Comments from a specific community member that they love their own cat(s) and / or kitten(s). ◦ Comments where deep connections or a loving connection or a closeness are discussed. ◦ Comments where soulmates or unconditional love are referenced. ◦ Comments in reference to having to let a cat/kitten go because you love them. ◦ Often found in sympathetic or supportive comments that include <i>power of the paw</i>. ◦ Reference to a specific cat or kitten (such as Nano) bringing love to the community. ◦ Sometimes linked to comments in which 	

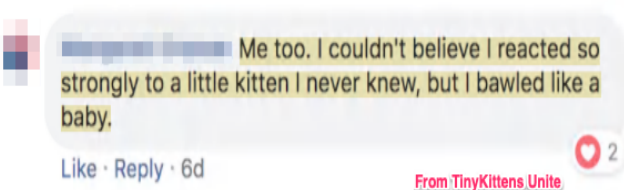

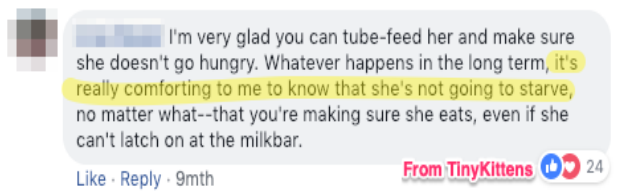

Emotion Code	Explanation	Example(s)
	<ul style="list-style-type: none"> condolences are given or memories are shared. Any type of heart emoji or emoticon (♥️♥️♥️♥️♥️♥️♥️♥️♥️), including the smiley face with the heart eyes (😍😍). Any type of sticker that obviously portrays love. 	
Admiration (468)	<p>The <i>Admiration</i> code was often found in posts or comments where the author was making an observation, but with an added adjective regarding the noun being observed. For example, not just <i>There's a cat</i>, but <i>There's a beautiful cat</i>.</p> <p>It was also found frequently in the following situations:</p> <ul style="list-style-type: none"> In reference to someone doing a <i>good job</i> or <i>hard work</i>. In reference to someone (including a cat or kitten) being cute, sweet, adorable, beautiful, an angel, amazing, precious, gorgeous, pretty, brave or special. Community members commenting how much they like /love/ admire a photo, video, clothes, looks, relationship (usually between two cats), actions, behaviours, face (usually a kitten), story, or a specific cat or kitten. Referring to someone as a <i>charmer</i>, <i>handsome boy</i>, or <i>beautiful beast</i>. In reference to something being cool or interesting. Comments where a community member says they have respect for something someone has done. Reference to someone providing inspiration or being inspired by something. Often included with certain types of statements of gratitude. 	


Emotion Code	Explanation	Example(s)
Hope (439)	<p>The Admiration code does not have any specific emojis or stickers associated with it.</p> <p>Posts and comments where the <i>Hope</i> code was used were either obvious (included the word <i>hope</i> or <i>wish</i>) or were on the fence with <i>Sympathy</i>. For example, mention of <i>thoughts and prayers</i> was coded under <i>Sympathy</i>, but when those thoughts and prayers were because the community member was hoping or praying that something go well or get better, it was coded under <i>Hope</i>.</p> <p><i>Hope</i> was also used in the following situations:</p> <ul style="list-style-type: none"> ◦ References to fingers, toes, or paws being crossed. ◦ References to wishing someone luck in doing something specific which could be interpreted as <i>I hope it goes well</i>. ◦ Comments that include being or feeling hopeful that something specific will happen, possibly because good progress has been made. ◦ Comments that included <i>feel better</i> or <i>hang in there</i>. ◦ Comments in reference to someone staying safe, mainly directed towards Shelly when Langley was under a floor warning. ◦ Comments that included <i>sending positive vibes</i> or <i>best wishes</i>. ◦ Comments in which the community member hoped or wished that: two or more kittens get adopted together, someone (person, cat or kitten) is okay or is getting better, something goes well, Shelly finds kittens for Grandpa Mason, a specific feral cat is seen at TinyKittens again because they turned in their feral card, 	

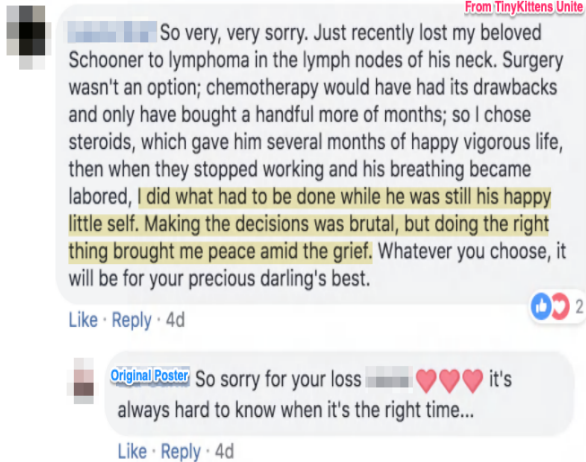
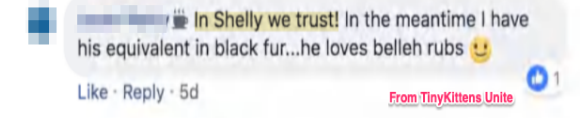
Emotion Code	Explanation	Example(s)
	something is not serious or as bad as it sounds, or someone (usually a kitten) survives.	
	Only one emoji was coded as <i>Hope</i> in all cases, the prayer hands emoji (🙏).	
Sympathy + Pity (331)	At times, <i>Sympathy</i> might be interpreted as a positive emotion and <i>Pity</i> might be interpreted as a negative emotion. However, for analysis purposes the two codes were combined as <i>Pity</i> was only used nine times. Interestingly, the <i>Sympathy</i> code was only used in posts and comments on TinyKittens Unite.	
	<p>The <i>Sympathy</i> code was used most often in the following situations:</p> <ul style="list-style-type: none"> ◦ Comments that included a prayer or reference to a community member keeping someone in their prayers or thoughts. ◦ Comments such as <i>I'm thinking about you.</i> ◦ References to understanding what someone else is going through or understanding how someone else is feeling. ◦ Comments that included <i>power of the paw</i> or <i>RIP.</i> ◦ Comments that included things like <i>well wishes, get well, or feel better.</i> ◦ Comments that included reference to giving someone a virtual hug. ◦ References to a community member feeling sorry that something happened, usually to another community member. ◦ Sending good luck to someone who is going through something specific like a medical procedure or taking a sick cat to the vet. 	
	When <i>Pity</i> was used, it was used in reference to something sad that happened (usually to a cat or kitten)	

Emotion Code	Explanation	Example(s)
Confident + Determined (159)	<p>that caused the author of the post or comment to feel bad.</p> <p>Posts and comments coded as <i>Confident</i> were mainly ones where the author was certain (without a doubt) that something was going to happen. Whereas, those coded as <i>Determined</i> were similar but with slightly less certainty and a little more doubt.</p> <p>The <i>Confident</i> code was used in the following situations:</p> <ul style="list-style-type: none"> ◦ Comments that were direct and positive about something that was going to happen, that something was going to be okay, that a product being recommended really worked, or that a specific fact was correct. ◦ Comments where a community member is being supportive by encouraging someone to think positively. ◦ References to not having regret about something. ◦ References to having patience due to something happening. ◦ Comments that start with phrases like <i>I know</i>, <i>You will</i>, or <i>You've got this</i>. <p>Whereas, the <i>Determined</i> code was used in the following situations:</p> <ul style="list-style-type: none"> ◦ Comments where a community member is being encouraging, but with slightly less certainty. ◦ Comments that include that <i>miracles happen</i>. ◦ Comments that start with phrases like <i>I will</i> or <i>I am going to</i>. 	 <p>Tinykittens June 10, 2018 · 🌐</p> <p>Kibble lessons continue for Aura, our kitten who was born with a severe cleft palate. Tune in LIVE: TinyKittens.com/live</p> <p>Aura made it through 267 tube feedings before she discovered she could bite a feeding tube in half last week, which made tube feeding too dangerous to continue. On the advice of our veterinary team, we are trying to transition her to eating kibbles instead of canned/soft food. This is because kibbles are too big to fit through her cleft to get into her nasal passages and lungs, but still small enough for her to swallow without problems.</p> <p>The challenge has been teaching her how to eat for the first time, since she never learned how to nurse or swallow normally, because her cleft made it impossible for her to nurse from the moment she was born. The tube feeding saved her life, but it also trained her muscles to push food out instead of swallowing it down.</p> <p>So, it's great progress for her to be picking up a kibble on her own and "chewing" it, even though most of the time each kibble is coming back out instead of being swallowed. We'll get there eventually!</p> <p>In the meantime, her weight is holding steady and she just started drinking a little bit of water on her own, which is exciting! 😊</p> <p>TinyKittens TinyKittensHQ</p> <p>👍❤️👍 7.6K 556 Comments 699 Shares 64K Views</p>

Emotion Code	Explanation	Example(s)
Curious (109)	<p>In almost every situation, the <i>Curious</i> code was used when a community member asked a question. The question could be about a wide variety of topics, such as:</p> <ul style="list-style-type: none"> ◦ What happened on the live video stream while someone was away. ◦ What happened at TinyKittens that someone missed. ◦ What others think about an idea or plan. ◦ How a specific event went, either at TinyKittens or directed towards a specific community member, often in regard to a vet appointment. ◦ Where to find specific items, such as a Feliway collar. ◦ What to do in a specific situation, usually the situation relates to a cat or kitten in some way. ◦ Following up with a specific community member to ask how they or their cat is because that member posted something previously. ◦ Following up with a community member who posted asking a question or for advice in order to clarify what has already been tried / done or what the specific symptoms may be. 	 <p>Where did you get the calming jacket??? I so need one for one of mine!!!! Thanks!!!!!! You are just soooooo cute Puff Puff!!!!!!</p> <p>Like · Reply · 1y</p>  <p>TinyTuxies His is a Calm Cat brand, but similar to this: http://www.thundershirt.com/thunde.../thundershirt-cats.html</p> <p>THUNDERSHIRT.COM Cat Anxiety Vest Shop Cat Anxiety Treatments ...</p> <p>Like · Reply · 1y</p>
Excited (108)	<p>The <i>Excited</i> code was used under some very specific circumstances, as follows:</p> <ul style="list-style-type: none"> ◦ When a sentence ended with multiple exclamation points. ◦ When a word was written with extra letters, such as: <i>soooo</i> or <i>yaaay</i>. ◦ When a specific word was written in all capital letters, such as: <i>YAY</i>, <i>WOW</i>, or <i>SO EXCITED</i>. 	 <p>Yay, jumping up and down clapping 🙌</p> <p>Like · Reply · 10mth</p> <p>From TinyKittens</p>

Emotion Code	Explanation	Example(s)
	<ul style="list-style-type: none"> ◦ Comments that included one of the following phrases: <i>OMG, finally, it's happening, can't wait, can't hardly wait, or woohoo.</i> ◦ The excitement, thrill, or delight was normally directed towards a momma cat going into labour, the birth of a litter of kittens, when Aura had the broken feeding tube removed, kitten time with Grandpa Mason, or a cat or kitten getting adopted. 	
Surprise (68)	<p>The <i>Surprise</i> code, I found, was a little different from the other Emotion Codes. There were very few words that could be used to guide the coding process, other than when the community member explicitly mentions that they were surprised or shocked, or that they were not expecting something. Surprisingly (no pun intended), that did not happen as often as I would have thought. Instead, <i>Surprise</i> was used when the context in which a specific statement was made indicated the person writing the statement was surprised that something happened. It would be much harder to code <i>Surprise</i> without reading the entire post or comment (i.e., via an automated process).</p> <p>The only other specific situations where <i>Surprise</i> was used was when the community member included one or more of the following: <i>Wow!, Oh no!, Really?!?, Thank God/goodness, or I can't believe...</i></p>	 <p>Me too. I couldn't believe I reacted so strongly to a little kitten I never knew, but I bawled like a baby.</p> <p>Like · Reply · 6d</p> <p>From TinyKittens Unite  2</p>
Relief (52)	<p>In many cases, the <i>Relief</i> code was used when a community member specifically used the word <i>relief</i> or <i>relieved</i> in reference to feeling better about something. It was not, however, used if a community member simply mentioned that something could be stress relieving or relaxing, as that was considered a Process Code.</p>	 <p>I'm very glad you can tube-feed her and make sure she doesn't go hungry. Whatever happens in the long term, it's really comforting to me to know that she's not going to starve, no matter what--that you're making sure she eats, even if she can't latch on at the milkbar.</p> <p>Like · Reply · 9mth</p> <p>From TinyKittens  24</p>

Emotion Code	Explanation	Example(s)
	<p>It was also found in the following situations:</p> <ul style="list-style-type: none"> ◦ Comments that included <i>Whew/Phew, Thank goodness, Thankfully, or Luckily.</i> ◦ References to being able to breathe again or that something had returned to normal. ◦ Comments that provided information about a medical procedure or test or doctor/vet appointment that went well. 	
<p>Proud (49)</p>	<p>The <i>Proud</i> code was used in the following situations:</p> <ul style="list-style-type: none"> ◦ In reference to someone or something amazing or someone or something meaning a lot to someone. ◦ Comments where a specific success was celebrated. ◦ Comments where community members were proud that they were able to provide a specific cat or kitten a good home and love. ◦ In reference to someone who has made a difference somewhere. ◦ Comments where community members talk about a specific situation—usually rescuing or fostering a cat or kitten—being a rewarding experience. ◦ Comments where community members praised someone for doing something courageous, such as someone who voluntarily gave up their cat because they were mentally ill and were in a homeless shelter. ◦ In reference to being a member of the TinyKittens online community, or in reference to something good the community has done (e.g., fundraising). 	 <p>The screenshot shows a Facebook post from the group 'From TinyKittens Unite' dated September 4 at 6:44 PM in Christchurch, New Zealand. The post text reads: 'Could not be more proud of this young man! Made his own cat blanket for his cat Panda. He did all the work after I showed him how!'. The post features a video of a young man cutting fabric and several photos showing him working on a purple and pink patterned blanket. At the bottom, it shows 268 likes and 24 comments.</p>

Emotion Code	Explanation	Example(s)
Acceptance (12)	<p>The <i>Acceptance</i> code was used only 12 times and, in almost all cases, it was in reference to some form of positive acceptance. For example, accepting that cats will be cats, or that giving meds to cats is hard but required.</p> <p>One statement coded as <i>Acceptance</i> in the data set was similar to the example provided here, where the community member accepted that they made the right decision to put their cat down.</p>	
Trust (5)	<p>The <i>Trust</i> code was only used five times, but the example provided is why the code was created in the first place. The saying, <i>In Shelly we trust</i>, seems to have become somewhat of a motto amongst community members and implies that they trust whatever decisions Shelly makes with regards to the cats and kittens in her care. In some ways, this could be seen as a negative because it is also used to shut down discussions of alternatives or to question if the decision made by Shelly was the right one.</p>	

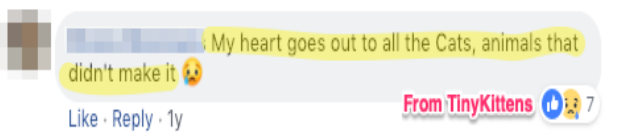
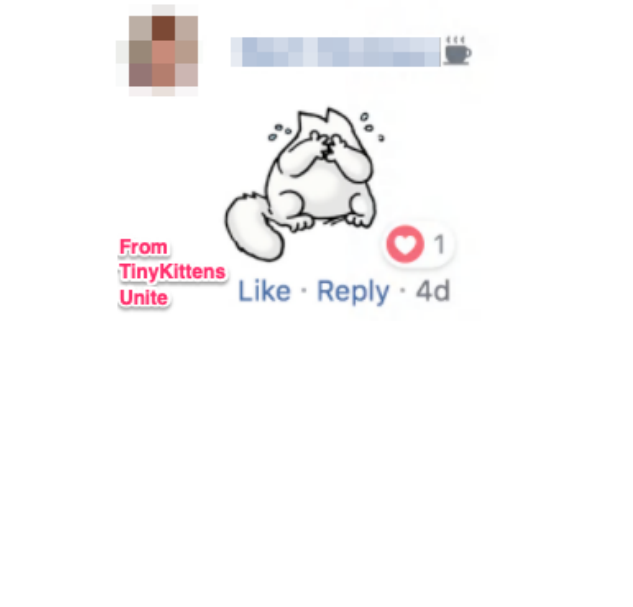
Note: Examples can be from any of the four official TinyKittens Facebook pages or the TinyKittens Unite Facebook page. Each example notes which page it came from.

5.3.2.4 Negative Emotions

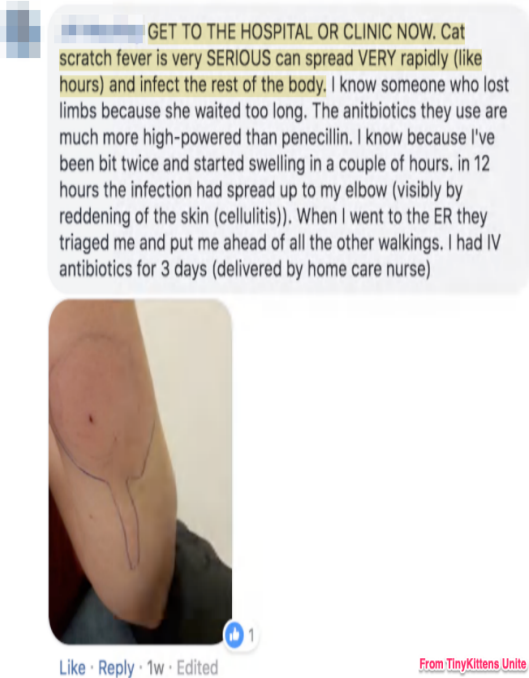
Table 9 lists all the negative Emotion Codes, in the order of how frequently they were used in the coding process. For each Emotion Code, an explanation of the general context in which these codes were found and an example is provided.

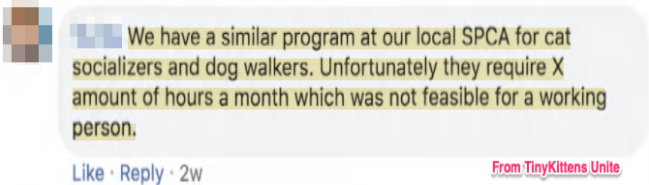
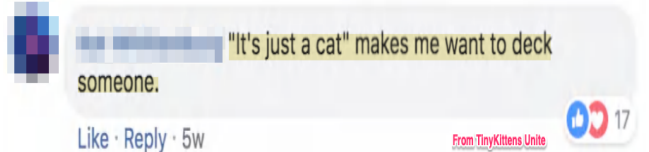
Table 9

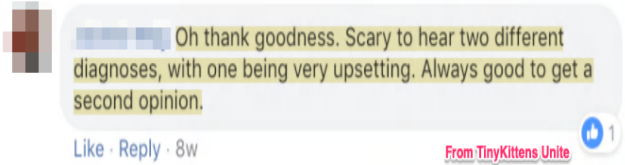
Explanations and Examples for Negative Emotion Codes

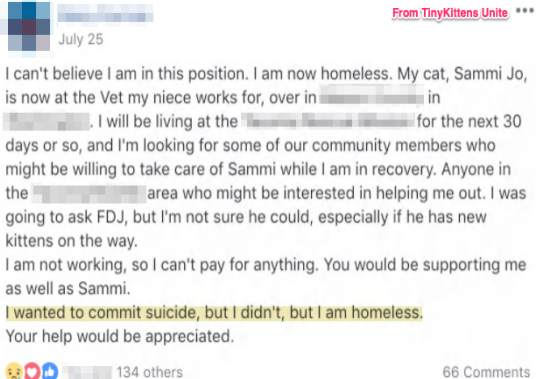
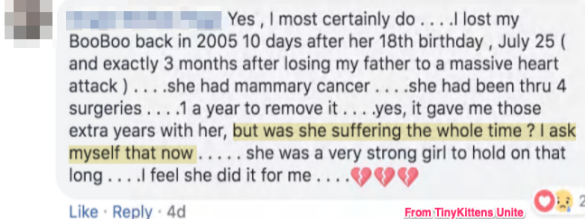
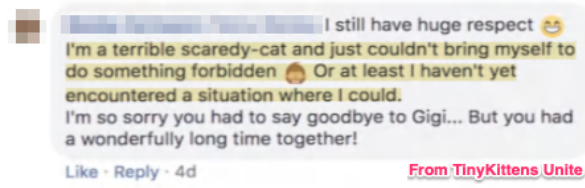
Emotion Code	Explanation	Example(s)
Sad (262)	<p>The <i>Sad</i> code is considered a negative emotion, but, in some cases, the sadness felt by community members is because of a happy event (e.g., a cat or kitten being adopted or returned to a feral colony). In those situations, the community members feel sad because the cat or kitten will not be on the live video stream anymore, or they may not receive updates on how the cat or kitten is doing. The event the person is sad about is not, in and of itself, a sad event.</p> <p>One major event that occurred during the study period was Nano’s birthday. Nano was a very special kitten who passed away during surgery a couple years ago and held a very special place in the hearts of many community members. Comments to posts about his birthday included a lot of reminiscing and recollections about how sad members were when Nano passed away. Many of the comments included mention of the member sobbing or crying for a significant period of time.</p> <p>Many cats and kittens end up at TinyKittens because they had been dumped by humans. When community members discuss these events, it often includes</p>	 

Emotion Code	Explanation	Example(s)
	<p>negative feelings towards the humans who did not treat the cats or kittens well. Depending on the tone of the comment, some were coded as <i>Sad</i> while others were coded as <i>Angry</i>.</p> <p>However, the <i>Sad</i> code was also used for many sad events and situations, including:</p> <ul style="list-style-type: none"> ◦ Comments by a community member talking about a specific cat or kitten that has died. ◦ When a comment included <i>poor...baby, sweetie, kiddo, guy, kitty</i>, or the specific name of a cat or kitten, because something unfortunate had happened to the cat or kitten in question. ◦ Comments that include reference to something being heartbreaking or a community member being sorry for someone's loss. This includes comments with <i>RIP</i>. 	
	<p>There were many emojis and stickers that were coded as <i>Sad</i>, including 🥹😭😭🐱.</p>	

Emotion Code	Explanation	Example(s)
Anxious (101)	<p>There is some overlap between statements coded with <i>Hope</i> and statements coded with <i>Anxious</i>. This is because many statements included the word <i>hope</i> but the way in which the statement is written makes it obvious that the author is concerned or anxious about what is going to happen (e.g., <i>I hope he doesn't die</i>).</p> <p>The <i>Anxious</i> code was also used in the following situations:</p> <ul style="list-style-type: none"> ◦ Comments where the community member is not sure something is going to work. ◦ Comments with questions asking how someone (including a cat or kitten) is doing or what is wrong with something. These usually include additional context that demonstrates more than curiosity. ◦ Comments in reference to a post where something bad has happened and a community member is seeking advice. These comments tend to be blunt, telling the community member to do something immediately. Sometimes the comments even include examples of possible bad outcomes or scenarios. ◦ Comments that include stories about a community member's cat or kitten who has developed a bad habit (such as peeing on the carpet). These comments often include the member indicating they are at their wits end, or that they are stressed out because nothing is working. ◦ Comments that include words like <i>concern</i> or <i>worry</i>. These comments are almost always in reference to a specific cat or kitten. <p>There were a couple of emojis which were coded as</p>	 <p>GET TO THE HOSPITAL OR CLINIC NOW. Cat scratch fever is very SERIOUS can spread VERY rapidly (like hours) and infect the rest of the body. I know someone who lost limbs because she waited too long. The antibiotics they use are much more high-powered than penecillin. I know because I've been bit twice and started swelling in a couple of hours. in 12 hours the infection had spread up to my elbow (visibly by reddening of the skin (cellulitis)). When I went to the ER they triaged me and put me ahead of all the other walkings. I had IV antibiotics for 3 days (delivered by home care nurse)</p> <p>Like · Reply · 1w · Edited</p> <p>From TinyKittens Unite</p>

Emotion Code	Explanation	Example(s)
	<p>Anxious: the ones with gritted teeth 😬 and the ones with a sad face with raised eyebrows 😞).</p>	
<p>Frustrated + Disappointed + Disgusted (67)</p>	<p>The <i>Frustrated</i> code was used in the following situations:</p> <ul style="list-style-type: none"> ◦ Comments in reference to a bad veterinarian. ◦ Comments in reference to the bad behaviour of a specific cat or kitten. ◦ Comments in reference to trying something (usually a solution to solve a problem associated with a cat or kitten) and finding it is not working. ◦ Personal stories posted by community members on TinyKittens Unite venting about something they experienced or heard that got to them. Most of these stories are cat or kitten related. ◦ Comments in reference to cat or kitten products that are known to be dangerous (e.g., store-bought flea and tick medication). <p>Some of the comments coded as <i>Frustrated</i> related to frustration towards other community members who may have written something that was not appreciated.</p> <p>The <i>Disappointed</i> and <i>Disgusted</i> codes were used a lot less often than the <i>Frustrated</i> code. In some ways, <i>Disgusted</i> was used for comments a level above being frustrated. And <i>Disappointed</i> was used for comments a level below being frustrated. This was the main reason why the three codes were combined.</p>	
<p>Angry (27)</p>	<p>The <i>Angry</i> code was used only 27 times across all posts and comments. Considering that the <i>Angry</i> Facebook reaction was only used 64 times in all the comments to Shelly's posts, this low number is not unexpected. In general, TinyKittens online community members do not</p>	

Emotion Code	Explanation	Example(s)
	<p>get angry or mad very often. Instead, they get sad, concerned, or frustrated.</p> <p>When they do get angry, it tends to be about something very specific. For example, when someone (including a cat or kitten) is diagnosed with something really serious (like cancer), when someone (outside TinyKittens) treated a cat or kitten badly, or when a veterinarian has done a very bad job (like a misdiagnoses). In only a few cases, the anger is directed at another community member because something mean or rude was written. And while those mean and rude comments are memorable; they do not happen very often.</p>	
<p>Scared + Horrified (23)</p>	<p>The <i>Scared</i> and <i>Horrified</i> codes were used equally in the coding process. In general, they were used in the following situations:</p> <ul style="list-style-type: none"> ◦ Comment from a community member about an illness they experienced. ◦ Reference to 9/11. ◦ Comments in response to a story where a veterinarian misdiagnosed the illness of a community member’s cat and then recommended euthanasia. ◦ Comments in reference to a scary incident a community member experienced. ◦ Comments in reference to the fact that community members may one day have to put their cats to sleep. 	

Emotion Code	Explanation	Example(s)
Helpless (22)	<p>The <i>Helpless</i> code was found in the following situations:</p> <ul style="list-style-type: none"> Multiple comments from one community member regarding the wait required to learn the results of veterinary tests. Comments from community members regarding not knowing what to do about specific situations being experienced, usually as it relates to their cat. One specific comment from a community member who attempted suicide and is homeless. 	
Regret + Guilty (9)	<p>The <i>Guilty</i> code was used only three times and the <i>Regret</i> code was used only six times. All three <i>Guilty</i> codes were used on comments related to a community member feeling guilty they had waited too long to put their cat down and that their cat likely suffered. All six <i>Regret</i> codes were used on comments relating to a community member regretting they could not help another community member with an issue. It could be argued that these two codes are interchangeable and either code could have been used for all nine comments.</p>	
Jealous (2)	<p>While only used twice, the example provided shows how the <i>Jealous</i> code could be considered a positive emotion. In this case, the author of the comment is envious of how brave another community member was in a specific situation. In some ways, this could also have been considered <i>Admiration</i>.</p>	

Note: Examples can be from any of the four official TinyKittens Facebook pages or the TinyKittens Unite Facebook page. Each example notes which page it came from.

5.3.2.5 *Information Exchanged*

By looking at only the summary counts of how often each Emotion Code was used, or how often certain emotion words were found in the full data set, it is difficult to determine the specific types of information being exchanged. But when the specific content of the posts and comments are reviewed, the following conclusions can be drawn about the types of information being exchanged between members of the TinyKittens online community.

- Jokes and sarcastic comments are being made between community members, usually about the cats and kittens at TinyKittens.
- Community members often anthropomorphize the cats and kittens on the live video stream (or recorded videos) by commenting on what those cats and kittens may be feeling or thinking. Sometimes this is even done using joke close caption quotes or scripts, or by editing videos to include commentary.
- Observations are often made about the cats and kittens, specifically about the cute and adorable things they do or the way they look.
- Providing various positive words of encouragement to other community members, such as: gratitude, congratulations, good luck, get well, happy birthday, etc.
- Personal stories from community members either about their experience with TinyKittens or a real-life situation. Many of these real-life stories tend to be about the community member's cats or kittens.
- Providing supportive or inspirational comments to community members, such as *power of the paw* or prayers.
- Expressing concern about one or more of the cats or kittens at TinyKittens, or about the personal situation another community member has experienced (usually in reference to their own cat or kitten).
- Providing condolences to community members who have experienced a loss (usually of a cat or kitten).

- Commiserating about the cats and kittens TinyKittens has lost over the years and how important those cats or kittens were in the lives of the community members.
- Asking questions for a variety of reasons, usually related to a cat or kitten.

5.3.2.6 Evidence for the Community-Based (Virtual) Human-Animal Bond

These findings are especially important for my research question associated with the community-based (virtual) human-animal bond. The theoretical connection between these findings and the human-animal bond will be explored in the next chapter, but we do know that positive emotions are a big part of the human-animal bond, and positive emotions significantly outweigh negative emotions in the TinyKittens online community. The majority of posts and comments include the positive emotions happiness, love, admiration, hope, and sympathy. Reading through the posts and comments which were coded with the positive emotions shows that community members care about each other, feel the ups and downs of TinyKittens with each other, and actively encourage and support each other. These are all things you would hope to experience in a close-knit community.

5.3.3 Descriptive Codes

Descriptive Codes helped determine the types of information being exchanged between TinyKittens online community members. They were sub-divided into four groups: Shelly's Posts, Comments to Shelly's Posts, TKU Posts, and Comments to TKU Posts. As a note, the posts and comments on the four official TinyKittens Facebook pages were retrieved in such a way that any type of attachment (e.g., photo, video, GIF, sticker, etc.) could be determined using a method other than coding. Whereas, attachments from TKU Posts and Comments to TKU Posts needed to be coded.

Descriptive Codes were used a total of 5,322 times between all four sub-groups. Not surprisingly, codes associated with Comments to TKU Posts were used the most often (3,525 times) as they were used to code the most number of comments (2,733). Several codes (listed below) were never used or used only once and will be excluded from further analysis.

- TKU Posts > Criticism
- TKU Posts > Educational
- TKU Posts > Warning
- TKU Posts > Sticker Included
- TKU Posts > Video Included
- Comments to Shelly's Posts > Critical
- Comments to TKU Posts > GIF Only
- Comments to TKU Posts > Video Only
- Comments to TKU Posts > Video Included

Four of the codes listed above—*Video Included* (x2), *Video Only*, and *GIF Only*—were never used. This was because it turned out to be almost impossible to tell the difference between a GIF, video, or photo based on a screenshot. Therefore, the very few items that were found under these codes (less than 10 between all four codes) were combined with the *Photo Only* or *Photo Included* codes. The code TKU Posts > Sticker Included was not used because it was discovered, after coding began, that stickers cannot be used in a post, they can only be used in a comment.

The four codes—*Criticism*, *Educational*, *Warning*, and *Critical*—were developed based on my experience that posts and comments of this type were found occasionally in the TinyKittens online community. But it turned out that these codes were not required. I do not believe that this means these types of interactions do not occur, but rather that these occurrences are fewer and further between than I originally thought. Posts and comments like this would likely be more memorable and would stand out in my mind during code development.

5.3.3.1 Shelly's Posts

There were nine Descriptive Codes under the sub-group of Shelly's Posts—see Table 10. They are not mutually exclusive. In general, Shelly's posts tended to be lengthy, usually included more than one paragraph, and almost always included some form of multi-media. It was unusual for one post to not have more than one Descriptive Code. For example, the *Explanation* code was used 181 times. This code was never used on its own, but rather to code sentences of a post that provided context for the

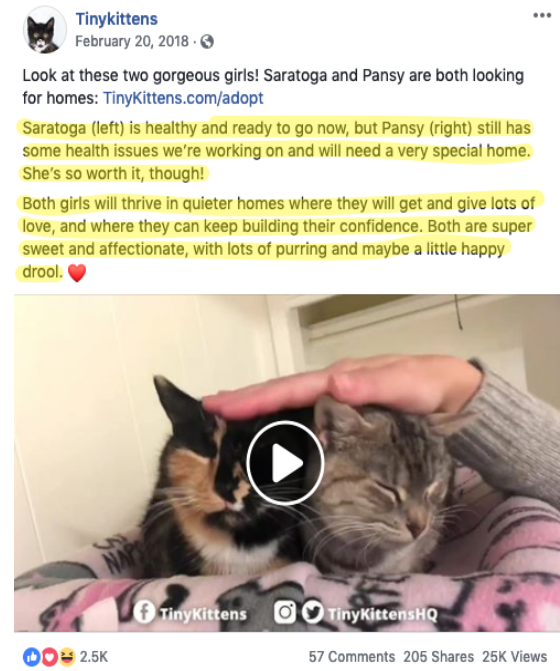
main topic (e.g., an announcement). That fact that 181 of 243 posts (or 75%) included the *Explanation* code indicates that Shelly almost always explains things in detail.

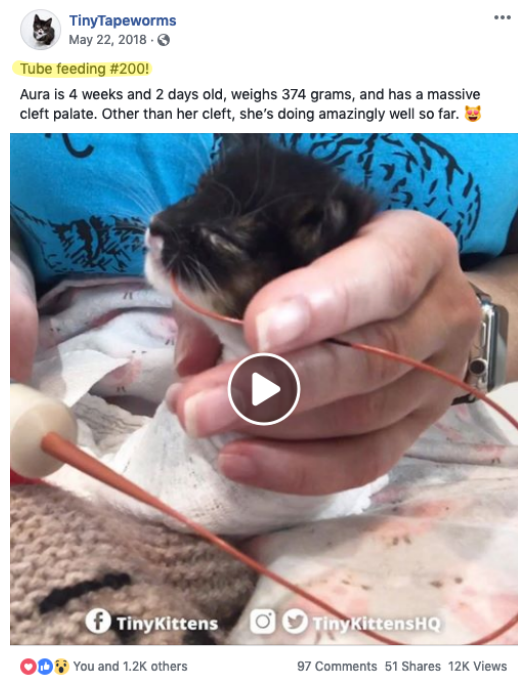
In the initial codebook development, two codes were created for posts that were fun: *Entertainment* and *Funny*. *Entertainment* was for anything interesting and entertaining, but not necessarily funny. And *Funny* was for anything goofy or joking. After reviewing the posts with each of these codes, I decided to combine them for analysis purposes. I discovered that it was rare for Shelly to post something that was entertaining but not funny, or funny but not entertaining!

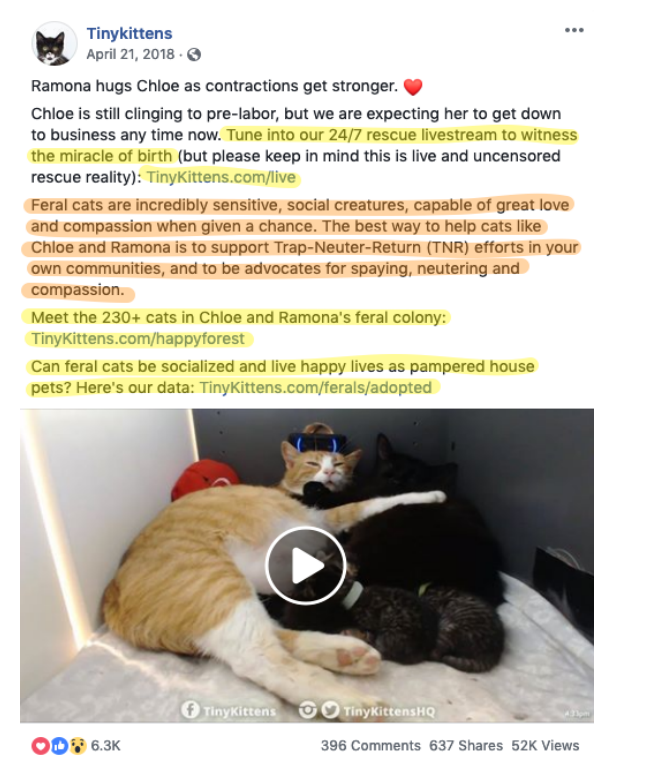
The *Request* code was originally developed for any posts in which Shelly made a specific request of community members or asked an explicit question. After coding her 243 posts, I discovered she rarely asked questions. She does make implicit requests often, but in almost every case, those implicit requests could also be coded as *Adoption*, *Advocating*, or *Advertisement*. I left the *Request* code in the analysis because the lack of explicit questions is an interesting finding.


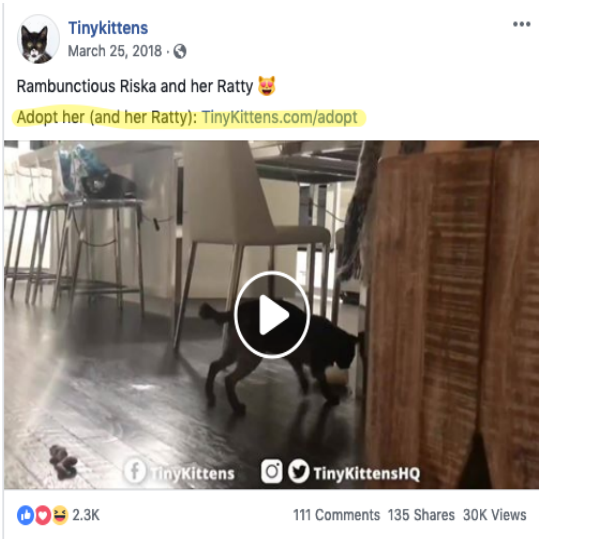
Table 10

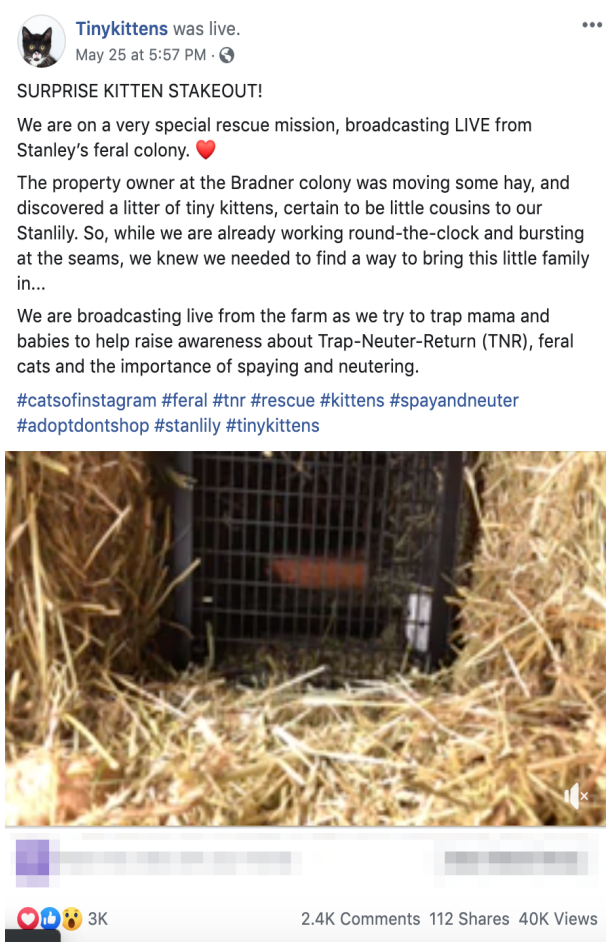
Explanations and Examples for Descriptive Codes Found in Shelly’s Posts

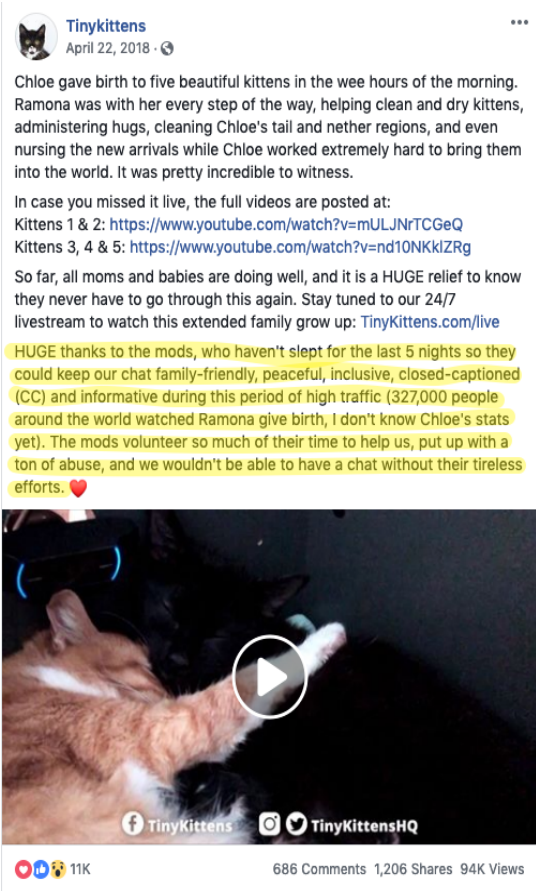
Code	Explanation	Example(s)
<p>Explanation (181)</p> <p>Almost every post included at least one sentence coded as <i>Explanation</i>. <i>Explanation</i> was used for any text that provided background information or context for the rest of the post. This code was never used on its own.</p> <p>As the posts on TinyTuxies were mainly for fun, they were short and rarely included an <i>Explanation</i> code. However, the majority of posts on the other three pages included the <i>Explanation</i> code.</p> <p>(In the example, the text highlighted in yellow was coded as <i>Explanation</i>. The un-highlighted sentence was coded as <i>Adoption</i>.)</p>		 <p>TinyKittens February 20, 2018 · 🌐</p> <p>Look at these two gorgeous girls! Saratoga and Pansy are both looking for homes: TinyKittens.com/adopt</p> <p>Saratoga (left) is healthy and ready to go now, but Pansy (right) still has some health issues we’re working on and will need a very special home. She’s so worth it, though!</p> <p>Both girls will thrive in quieter homes where they will get and give lots of love, and where they can keep building their confidence. Both are super sweet and affectionate, with lots of purring and maybe a little happy drool. ❤️</p> <p>TinyKittens TinyKittensHQ</p> <p>57 Comments 205 Shares 25K Views</p>

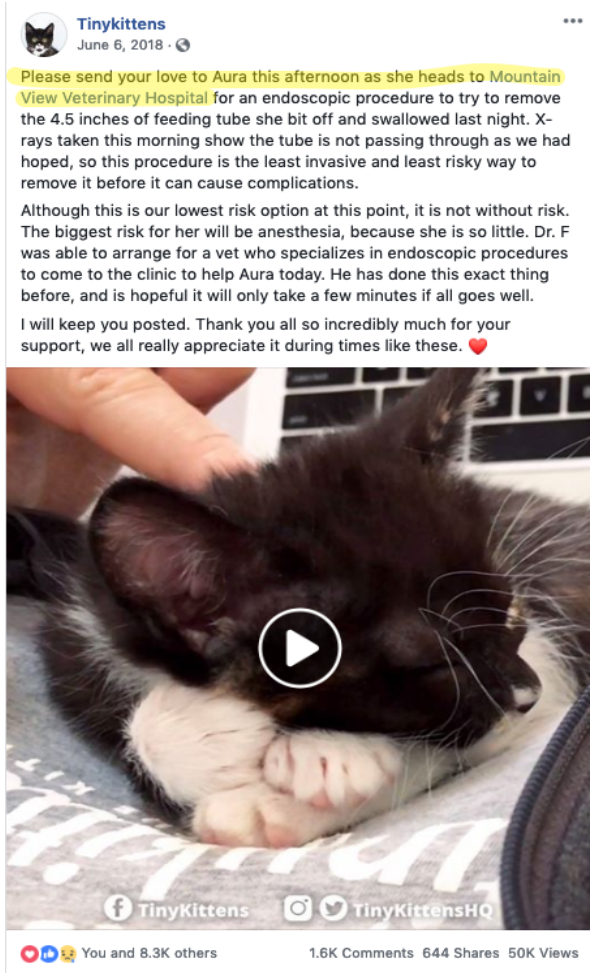
Code	Explanation	Example(s)
<p>Announcement (137)</p>	<p>The <i>Announcement</i> code was typically used for the first sentence in a post, while the rest of the post was coded as <i>Explanation</i>.</p> <p><i>Announcement</i> was used to code posts that introduced: photos or videos, events, health statuses or updates, new projects, specific adoptions, breaking <i>mews</i>, kitten names, cat or kitten deaths, and emergencies.</p> <p>Every post on TinyTapeworms had at least one sentence coded as <i>Announcement</i>. On TinyKittens, the month of April had frequent <i>Announcements</i> due to the births of three different litters (e.g., posts that included # <i>BellehVision</i>, # <i>KittenWatch</i>, <i>pre-labour</i>, <i>labour</i>, <i>births</i>).</p> <p>(The first sentence in the example was coded as <i>Announcement</i> and the remaining text was coded as <i>Explanation</i>.)</p>	 <p>The screenshot shows a social media post from the account 'TinyTapeworms' dated May 22, 2018. The post features a video thumbnail of a person's hands holding a small, dark-furred kitten while using a red tube to feed it. The text of the post reads: 'Tube feeding #200! Aura is 4 weeks and 2 days old, weighs 374 grams, and has a massive cleft palate. Other than her cleft, she's doing amazingly well so far. 🐱'. Below the video are social media sharing icons for Facebook (labeled 'TinyKittens'), Instagram, and Twitter (labeled 'TinyKittensHQ'). At the bottom, it shows engagement metrics: 'You and 1.2K others', '97 Comments', '51 Shares', and '12K Views'.</p>

Code	Explanation	Example(s)
<p>Advertisement (116)</p>	<p>Posts that include the <i>Advertisement</i> code always included a URL. A large portion of <i>Advertisement</i> posts were for the live video stream (www.tinykittens.com/live), but advertisements also included: the introduction of a new project, information about adopted ferals, information about one of the TNR colonies, recently added videos on YouTube, or <i>something floofy this way comes</i>.</p> <p>Posts with the <i>Advertisement</i> code were not typical commercial advertisements, but rather Shelly advertising something about TinyKittens. In some cases, <i>Advertisement</i> and <i>Advocating</i> could overlap, but <i>Advocating</i> was used more when some form of value statement was included.</p> <p>(In the example, sentences in yellow were coded as <i>Advertisement</i> and sentences in orange were coded as <i>Advocating</i>. The first sentence was coded as <i>Announcement</i> and the remaining sentences were coded as <i>Explanation</i>.)</p>	

Code	Explanation	Example(s)
Entertainment + Funny (75)	<p>The <i>Entertainment</i> and <i>Funny</i> codes were used to highlight posts that were fun. Every post that had the <i>Entertainment</i> or <i>Funny</i> code also included a photo or video.</p> <p>Almost all the posts on TinyTuxies were coded as <i>Entertainment</i> or <i>Funny</i> because that page is primarily used to share funny/goofy photos and videos of Shelly's cats. And, the majority of <i>Entertainment</i> or <i>Funny</i> posts on TinyTuxies were specifically about <i>Cassidy the Miracle Kitten</i> as he has a difficult time behaving himself and often made bad choices, which end up being very entertaining.</p>	 <p>TinyTuxies January 5, 2018 · 🌐</p> <p>This is how Puffs lets me know when he wants something. Usually he wants to be lifted onto the table so he can mess up my typing, or to be let into his room and entertained. 🐾</p> <p>If I don't appease him quickly enough, he will hook both paws into my leg and start to pull himself up. 😊</p> <p>TinyKittens TinyKittensHQ</p> <p>You and 1.6K others 101 Comments 33 Shares 12K Views</p>
Adoption (35)	<p>Any part of a post coded as <i>Adoption</i> always included the URL to the TinyKittens official adoption website (www.tinykittens.com/adopt). The post also included the names of the cat(s) available for adoption, some information about the cat(s), and either a photo or video of the cat(s).</p> <p>The vast majority of <i>Adoption</i> coded posts during the study period were for Riska, who did get adopted late in the study period. Posts from the months of May and June had very few <i>Adoption</i> codes as most previously available cats had been adopted or fostered and the kittens were not yet ready for adoption.</p> <p>(In the example provided, the first sentence was coded as <i>Entertainment</i> and the sentence highlighted yellow was coded as <i>Adoption</i>.)</p>	 <p>Tinykittens March 25, 2018 · 🌐</p> <p>Rambunctious Riska and her Ratty 🐾</p> <p>Adopt her (and her Ratty): TinyKittens.com/adopt</p> <p>TinyKittens TinyKittensHQ</p> <p>2.3K 111 Comments 135 Shares 30K Views</p>

Code	Explanation	Example(s)
<p>Advocating (26)</p>	<p>Posts coded with the <i>Advocating</i> code usually included mention of the various ways in which TinyKittens helps cats and kittens, statements about TNR, or statements about cat overpopulation. There was a lot of overlap between <i>Advocating</i> and Values Codes.</p> <p>Only one post coded as <i>Advocating</i> included a topic that was not TinyKittens; it was a post in May 2018 during the floods in Langley. In that post, Shelly reminded community members to always have an evacuation kit prepared for pets, as well as humans.</p>	

Code	Explanation	Example(s)
Thank You (24)	<p>Posts with the <i>Thank You</i> code were fairly obvious and explicit. Over the course of the study period, Shelly thanked quite a few people and organizations for the assistance they provided to TinyKittens. Those who were thanked included: TinyKittens volunteers, fundraisers and donors, local businesses (who donated items), chat moderators, vets and vet clinics, local news organizations (who ran stories on TinyKittens), and the Township of Langley (for protecting the city from the flood).</p>	 <p>Tinykittens April 22, 2018 · 🌐</p> <p>Chloe gave birth to five beautiful kittens in the wee hours of the morning. Ramona was with her every step of the way, helping clean and dry kittens, administering hugs, cleaning Chloe's tail and nether regions, and even nursing the new arrivals while Chloe worked extremely hard to bring them into the world. It was pretty incredible to witness.</p> <p>In case you missed it live, the full videos are posted at: Kittens 1 & 2: https://www.youtube.com/watch?v=mULJNrTCGeQ Kittens 3, 4 & 5: https://www.youtube.com/watch?v=nd10NkklZRg</p> <p>So far, all moms and babies are doing well, and it is a HUGE relief to know they never have to go through this again. Stay tuned to our 24/7 livestream to watch this extended family grow up: TinyKittens.com/live</p> <p>HUGE thanks to the mods, who haven't slept for the last 5 nights so they could keep our chat family-friendly, peaceful, inclusive, closed-captioned (CC) and informative during this period of high traffic (327,000 people around the world watched Ramona give birth, I don't know Chloe's stats yet). The mods volunteer so much of their time to help us, put up with a ton of abuse, and we wouldn't be able to have a chat without their tireless efforts. ❤️</p> <p>TinyKittens TinyKittensHQ</p> <p>👍👎👉 11K 686 Comments 1,206 Shares 94K Views</p>

Code	Explanation	Example(s)
Request (4)	<p>The <i>Request</i> code was used only four times, because Shelly rarely asked an explicit question. The posts coded with Request were about Aura when she swallowed her feeding tube and had to be brought to the emergency vet clinic. In those posts, Shelly explicitly asked for thoughts and prayers for Aura and TinyKittens.</p>	



Note: Examples can be from any of the four official TinyKittens Facebook pages. Each example notes which page it came from.

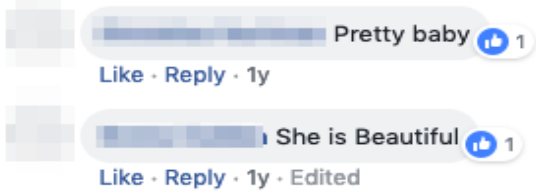

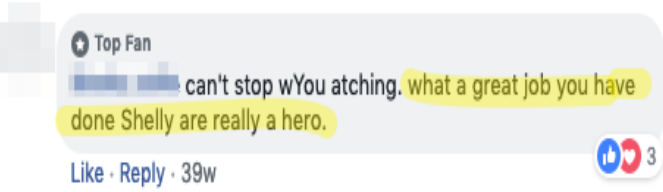
5.3.3.2 Comments to Shelly's Posts


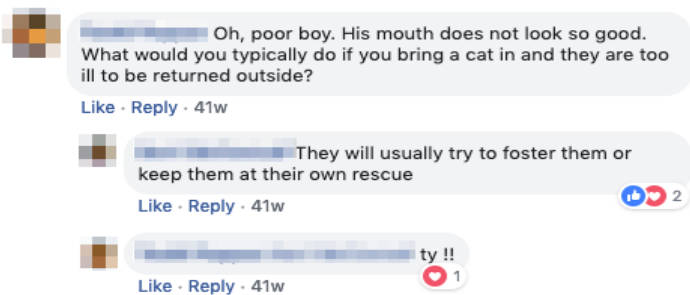
There were 11 Descriptive Codes used for the sub-group Comments to Shelly's Posts—see Table 11. All codes were used at least once, with *Critical* being used only once. The *Prayer* code was used only four times, but this is likely a result of coding only the first 1% of comments for each post. When the word *prayer* (and its stemmed words) was used as in a search of all comments to Shelly's posts in the full data set, 1,167 examples were found. It is highly probable that if the first 1% of comments were coded as *Prayer*, then the vast majority of the remaining 99% of those comments would also have been coded as *Prayer*.

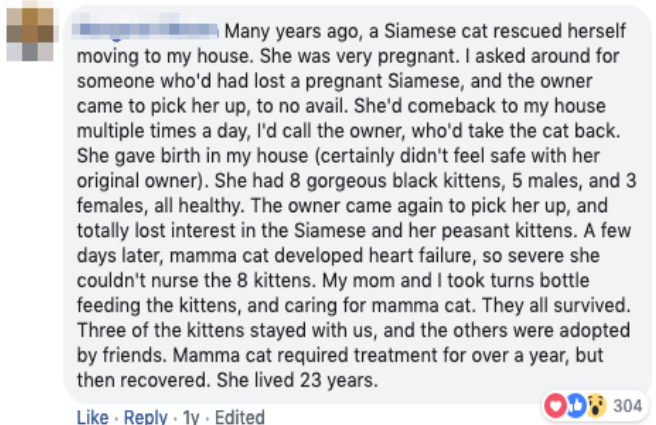
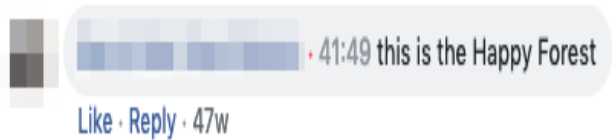
Table 11

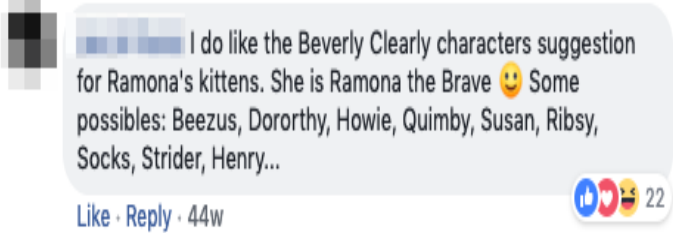

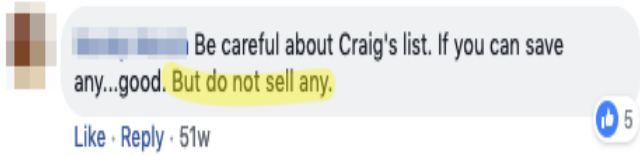
Explanations and Examples for Descriptive Codes Found in Comments to Shelly's Posts

Code	Explanation	Example
Supportive (332)	<p><i>Supportive</i> was the most frequently used Descriptive Code for Comments to Shelly's Posts. Many of the comments coded with <i>Supportive</i> were emotional and were also coded as <i>Love</i> or <i>Happy</i>. Many of these comments were also from community members explicitly expressing their support of something Shelly was doing (e.g., <i>In Shelly we trust!</i>).</p>	 <p>A screenshot of a Facebook comment from a user labeled 'Top Fan'. The comment text is: 'I have been watching Chloe all day & the MilkBar is ready!! Chloe looks so happy and feels secure in giving birth is a such safe & Loving environment 😊 Thank Shelly for rescuing Chloe & her soon to be kittens ❤️'. The text 'Chloe looks so happy and feels secure in giving birth is a such safe & Loving environment' is highlighted in yellow. Below the comment are icons for 'Like', 'Reply', and '44w', and a notification bubble showing '6' likes.</p>
Observation (261)	<p>The <i>Observation</i> code was used in many situations where a statement did not fit into any other code, either because the statement being made was quite simple or straightforward, or because the statement was some sort of obvious fact. There were no common words found amongst comments coded with <i>Observation</i>, unlike many of the other codes.</p> <p>It is interesting to note that many of the comments coded with <i>Observation</i> were also coded with the <i>Admiration</i> code.</p>	 <p>A screenshot of a Facebook comment. The comment text is: '"In custody" sounds like prison'. Below the comment are icons for 'Like', 'Reply', and '1y', and a notification bubble showing '6' likes.</p>

Code	Explanation	Example
		
<p>Funny (79)</p>	<p>The <i>Funny</i> code was used almost exclusively when community members were responding to a funny post or something included in a post that was funny.</p>	
<p>Gratitude (69)</p>	<p>Many of the comments with the <i>Gratitude</i> code were community members thanking Shelly and/or TinyKittens for the work they do. <i>Gratitude</i> coded comments also included members thanking Shelly or another community member for a specific post, answer, or update. Or even a member just thankful that something turned out okay.</p> <p>These comments typically included the words <i>bless you</i>, <i>thank you</i>, or <i>thanks</i>. When <i>bless you</i> was searched for in all comments to all posts, it was found 1,414 times, and <i>thank you</i> and <i>thanks</i> were found 3,943 times. I believe it is safe to say that the TinyKittens community is a polite community!</p>	

Code	Explanation	Example
<p>Sharing with FB Friends (66)</p>	<p>All posts from the four official TinyKittens Facebook pages are public and can therefore be shared with anyone who has a Facebook account. When a Facebook user clicks the Share button, it is recoded as such, but nothing appears in the comments. When a Facebook user writes a friend's name in a comment, it links to that friend's account and that friend receives a notification. This allows the community member to share the post with specific individuals and not on their News Feed. Only a few of these comments include additional text. The <i>Sharing with FB Friends</i> code was specifically used to determine how often this type of share function was used. Because all comments of this type included a name, the example provided includes an additional comment, otherwise nothing would be visible!</p>	
<p>Question (33)</p>	<p>The <i>Question</i> code was used anytime a sentence did or could end with a question mark. Because this code is for Comments to Shelly's Posts, many of these questions were directed at Shelly. However, the majority of the answers came from other community members. (It is rare that Shelly answers direct questions.)</p> <p>While it is impossible to determine how long someone has been a member of the TinyKittens online community, many questions were worded such that they were likely from a new member and not a veteran.</p>	

Code	Explanation	Example
<p>Personal Story (19)</p>	<p>Most comments with the <i>Personal Story</i> code were brief (as compared to similar comments on TinyKittens Unite). They were usually no longer than a sentence and typically included the community member providing a personal example similar to the situation being discussed in the post.</p> <p>(The example provided is an exception to the rule that the comments are short in order to provide a better idea of the types of personal stories shared.)</p>	 <p>Many years ago, a Siamese cat rescued herself moving to my house. She was very pregnant. I asked around for someone who'd had lost a pregnant Siamese, and the owner came to pick her up, to no avail. She'd come back to my house multiple times a day, I'd call the owner, who'd take the cat back. She gave birth in my house (certainly didn't feel safe with her original owner). She had 8 gorgeous black kittens, 5 males, and 3 females, all healthy. The owner came again to pick her up, and totally lost interest in the Siamese and her peasant kittens. A few days later, mamma cat developed heart failure, so severe she couldn't nurse the 8 kittens. My mom and I took turns bottle feeding the kittens, and caring for mamma cat. They all survived. Three of the kittens stayed with us, and the others were adopted by friends. Mamma cat required treatment for over a year, but then recovered. She lived 23 years.</p> <p>Like · Reply · 1y · Edited</p>
<p>Simple Comment (17)</p>	<p>The <i>Simple Comment</i> code was used only 17 times and was typically used when a comment did not fit into any other code, including <i>Observation</i>. Many of these comments were one word in length (e.g., <i>hello</i> or <i>yes</i>). These comments were also devoid of any type of emotion (unlike <i>Observation</i>) and will likely be excluded from any additional analysis.</p> <p>(The example provided is a comment made during a Facebook Live broadcast, at 41 minutes and 49 seconds into the broadcast. The community member is answering a question from another viewer, not making an observation.)</p>	 <p>· 41:49 this is the Happy Forest</p> <p>Like · Reply · 47w</p>

Code	Explanation	Example
<p>Suggestion (11)</p>	<p>The <i>Suggestion</i> code did not exist under Comments to TKU Posts when coding began, but I discovered it was needed. At the time, it was easier to use this code and split the comments after the fact. Because of this, the code was used 68 times, but only 11 times in Comments to Shelly's Posts.</p> <p>All 11 of these comments were community members making name recommendations for the newborn kittens.</p>	
<p>Prayer (4)</p>	<p>The <i>Prayer</i> code was only used four times (as mentioned already), but this is likely due to only the first 1% of the comments being coded.</p> <p>In general, based on the way most prayers were written, it appears that the majority of the individuals making these comments are of the Christian faith. And negative reactions to prayers or mention of praying are extremely rare.</p>	
<p>Critical (1)</p>	<p>The <i>Critical</i> code was used only once. In this one example, the community member is responding to a post on the Grandpa Mason page where Shelly mentioned she created a Craigslist post looking for kittens for Grandpa Mason. This member is concerned that Shelly might use Craigslist for selling kittens. In this case, it is likely that this is</p>	

Code	Explanation	Example
	someone fairly new to TinyKittens as cats and kittens are never sold and are never advertised on Craigslist. This was the only comment to this specific post where someone was concerned that Shelly might do something bad.	

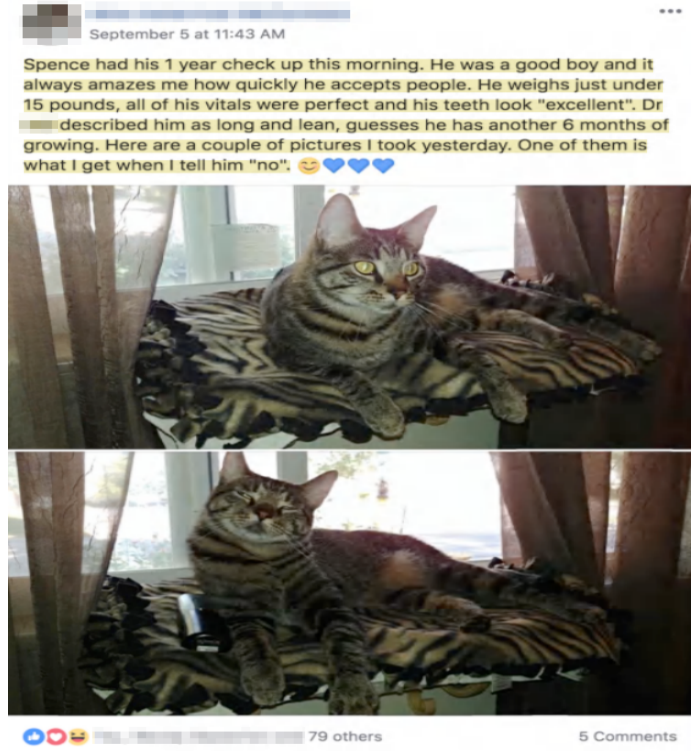
Note: Examples can be from any of the four official TinyKittens Facebook pages. Each example notes which page it came from.

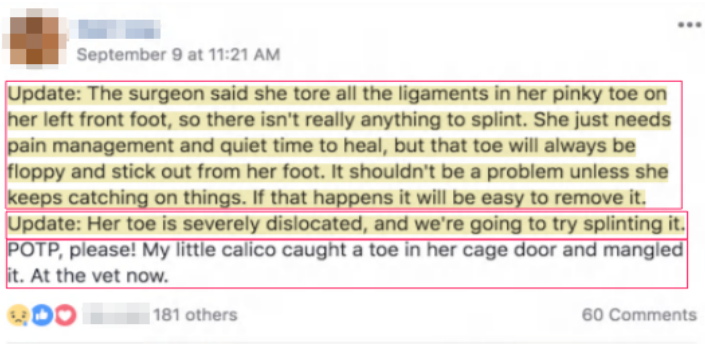
5.3.3.3 *TinyKittens Unite Posts*

Seventy-one posts were coded using 13 different Descriptive Codes—see Table 12. Of those 13 codes, one (*Warning*) was never used and two (*Criticism* and *Educational*) were used once each. As such, these three codes will not be included in the following table.

Table 12

Explanations and Examples for Descriptive Codes Found in Posts on TinyKittens Unite

Code	Explanation	Example
Personal Story (61)	<p>The <i>Personal Story</i> code was used 61 times in 40 different posts. This is, by far, the most frequently used Descriptive Code for TKU Posts. When the <i>Personal Story</i> code was used, the <i>Explanation</i> code was rarely used. All portions of the story were considered as part of the same code/story, as it was nearly impossible to divide the post between what portions were a <i>Personal Story</i> and what portions were an <i>Explanation</i>. Items coded as <i>Explanation</i> were not necessarily impersonal, but they tended to be more factual in nature, whereas items coded as <i>Personal Story</i> were more likely to be emotional.</p>	

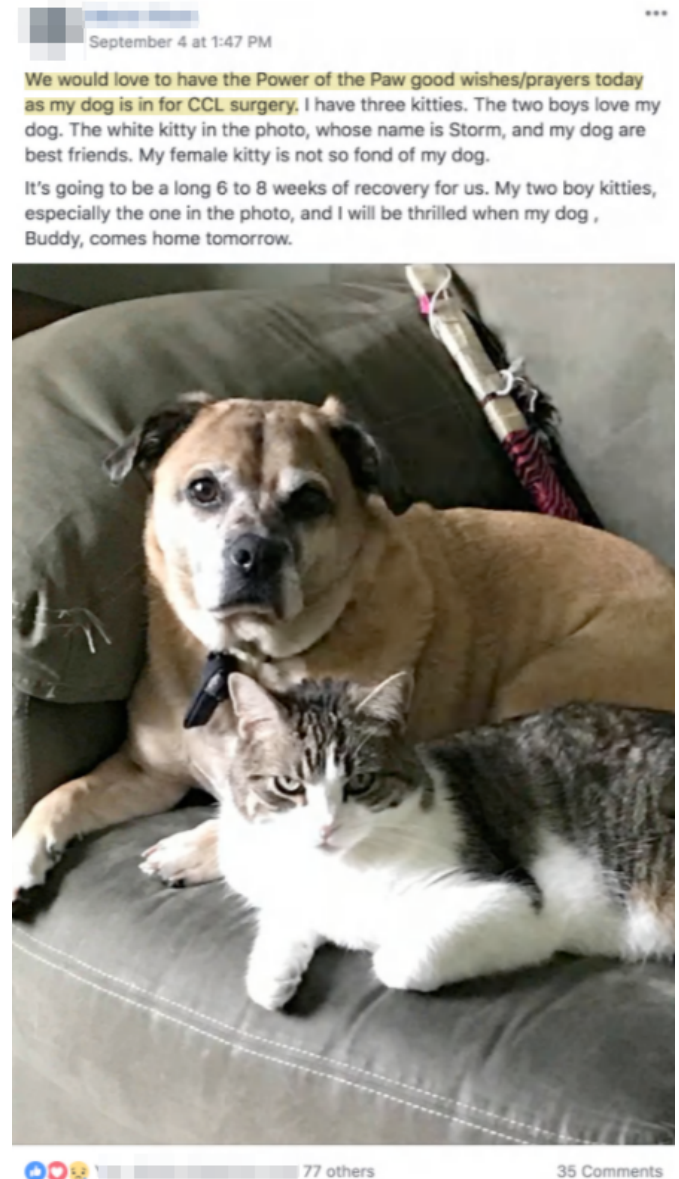
Code	Explanation	Example
Update in Post (37)	<p>The <i>Update in Post</i> code was used specifically when a community member edited their original post to provide an update. In all situations where the <i>Update in Post</i> code was used, the <i>Request</i> code was also used, as community members had previously asked for support and were now updating the community on the situation.</p> <p>In some cases, the update was easy to distinguish, as the member usually put the word <i>Update</i> at the start of the paragraph. However, there were several situations where the updates were written into the post in such a way that it was difficult to tell if it was part of the original post or added later. In some cases, the comments provided insight on whether an update was included in the post.</p>	 <p>The screenshot shows a social media post from September 9 at 11:21 AM. The post contains two updates regarding a cat's injury. The first update states: "Update: The surgeon said she tore all the ligaments in her pinky toe on her left front foot, so there isn't really anything to splint. She just needs pain management and quiet time to heal, but that toe will always be floppy and stick out from her foot. It shouldn't be a problem unless she keeps catching on things. If that happens it will be easy to remove it." The second update states: "Update: Her toe is severely dislocated, and we're going to try splinting it." Below the updates, there is a comment: "POTP, please! My little calico caught a toe in her cage door and mangled it. At the vet now." The post also shows 181 other users and 60 comments.</p>


**Request
(22)**


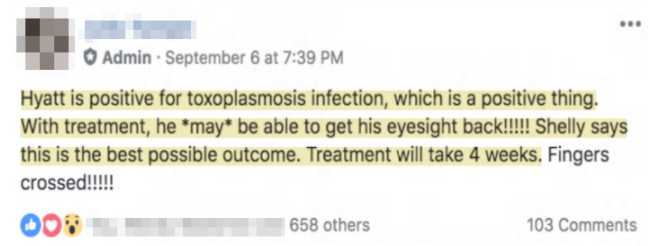
Posts with the *Request* code were much more frequent than posts with the *Question* code. Posts with the *Request* code almost always included the *Personal Story* code as well, as the member was providing context for the request.

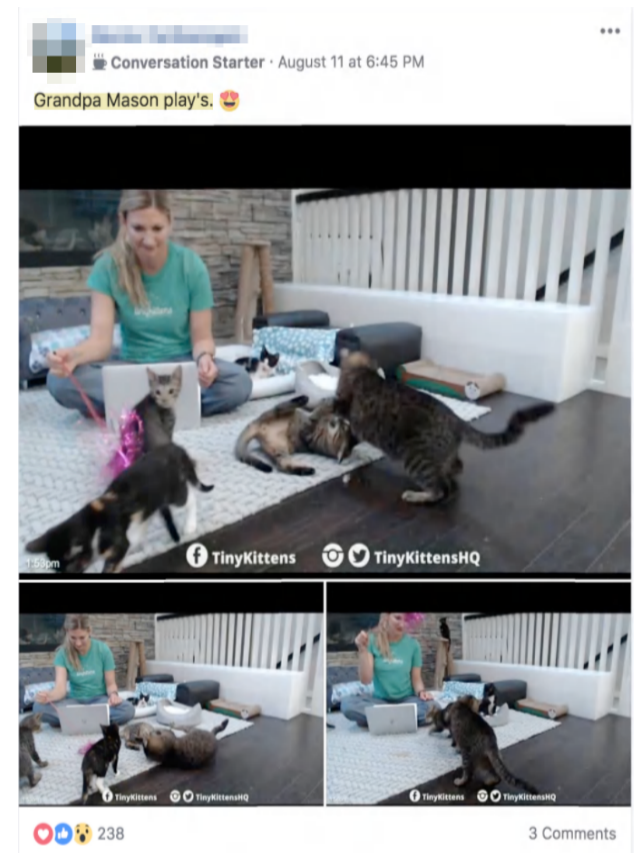
Many of the posts with the *Request* code were for *Power of the Paw*, where the community member needed support because a cat (or in some cases, a family member) was sick, injured, or not acting normal.

Some of the posts that included the *Request* code also included the *Update in Post* code, meaning that the community member was keeping the community updated on the situation for which they made the request.



Code	Explanation	Example
<p>Explanation (19)</p>	<p>All posts where the <i>Explanation</i> code was used also included another Descriptive Code. The <i>Explanation</i> code was never used on its own.</p> <p>In every post, the sentences of the post where the community member provided context or background were coded as <i>Explanation</i>, but the rest of the post was coded as <i>Announcement</i>, <i>Request</i>, <i>Question</i>, or <i>Gratitude</i>.</p> <p>(In the example, the text highlighted in yellow was coded as <i>Explanation</i>. The first sentence was coded as <i>Request</i>.)</p>	 <p>August 30 at 8:28 AM</p> <p>I need help my boy escaped Aug 15th. I have done everything to get him home. Flyers, social media, litter outside, searching at 4 am. I am heartbroken and exhausted. One of his sisters just walks around the house meowing. I have had an animal communicator track him to a forest across from my house. Neighbours have searched sheds etc. I am at a loss of what to do.</p> <p>82 others 25 Comments</p>

Code	Explanation	Example
<p>Gratitude (19)</p>	<p>Posts coded as <i>Gratitude</i> always included other Descriptive Codes. The posts with the <i>Gratitude</i> code were either community members thanking the community—in advance—for help (as a request was being made) or thanking the community for help that had already been received.</p> <p>In only a few of the posts, the <i>Gratitude</i> section of the post was directed towards TinyKittens or Shelly, usually because the community member was able to use something they learned on TinyKittens in real-life.</p>	
<p>Announcement (17)</p>	<p>Many of the posts which used the <i>Announcement</i> code provided an update on the status of a cat or kitten at TinyKittens (not the status of a cat owned by a community member). This is interesting because it is likely the same update was provided by Shelly on one of the official Facebook pages, which most (if not all) TinyKittens Unite members would have already seen. In some cases, the community member making the somewhat redundant post used it as an opportunity to start a conversation or provide an opinion about the status.</p> <p>The <i>Announcement</i> code was also used several</p>	

Code	Explanation	Example
<p>Entertainment (15)</p>	<p>times when a community member started their post by expressing (i.e., announcing) their opinion about something (other than a TinyKittens status).</p> <p>Posts with the <i>Entertainment</i> code had something entertaining to share with the community. The items shared included screenshots from the live video stream, photos from one of the TNR colonies, or other photos that were not related to TinyKittens.</p> <p>Unlike items coded as <i>Funny</i>, most <i>Entertainment</i> posts were not funny (or at least, not intended to be funny). The main purpose for each post was to share something entertaining, as opposed to doing any of the things covered by the other codes, which is demonstrated by the fact that the <i>Entertainment</i> code was never used in conjunction with another Descriptive Code.</p>	

Code	Explanation	Example
Funny (10)	Posts with the <i>Funny</i> code were almost always combined with another code, usually <i>Personal Story</i> . Sometimes the entire post was intended to be funny, while at other times, a funny sentence or comment was included to provide levity to the post.	
Question (7)	Very few posts used the code <i>Question</i> mainly because explicit questions were not asked very often. Instead, most community members posted a request (i.e., a statement that would not end with a question mark) rather than an explicit question.	

Note: Examples are from the TinyKittens Unite Facebook page only.

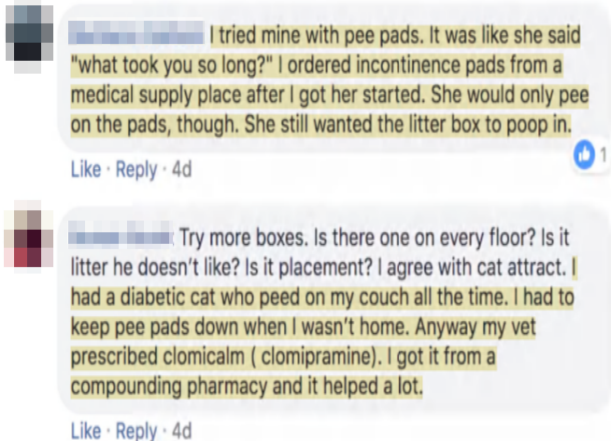

5.3.3.4 Comments to TinyKittens Unite Posts


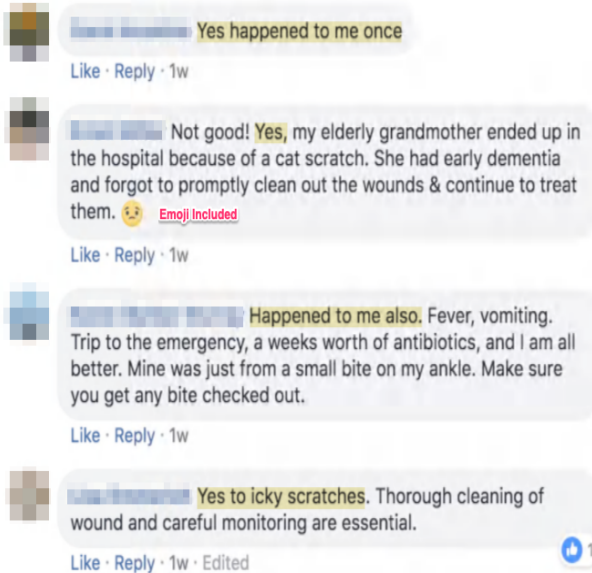
The 2,733 comments made as replies to a TKU Post were coded using 21 different codes—see Table 13. Three of the 21 codes were specifically for non-text items (emojis, photos, or stickers). The *Emoji Only* code was used 60 times, the *Photo Only* code was used 81 times, and the *Sticker Only* code was used 161 times. This means that 302 of the 2,733 comments (or 11%) did not include any kind of text. The remaining 2,431 comments had text and were coded using the remaining 18 codes. Of the 2,431 comments with text, eight of them included a sticker and 93 included a photo/video/GIF. The remaining 16 codes were used 3,178 times. The *Sharing with TKU Members* code was only used seven times and was removed from the analysis.

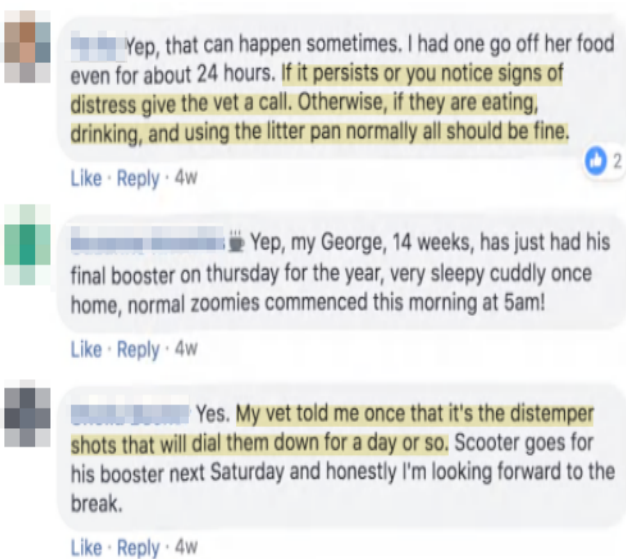



Table 13

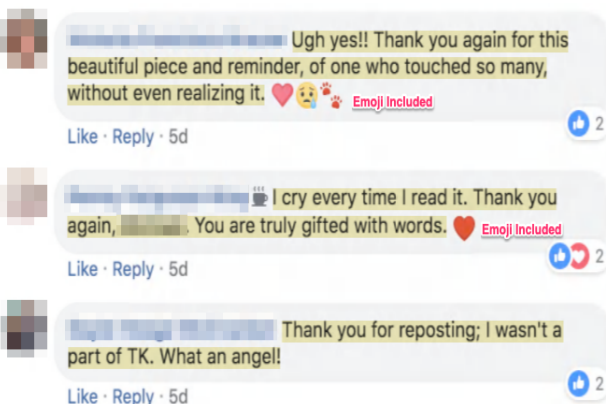
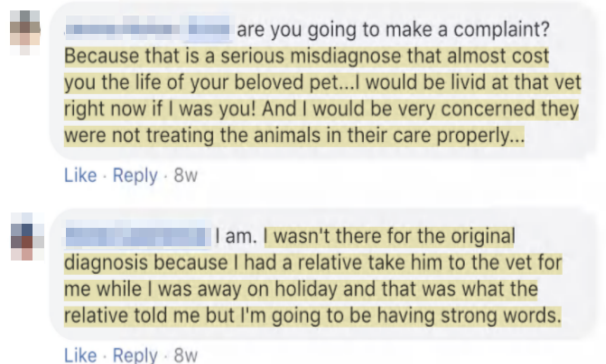
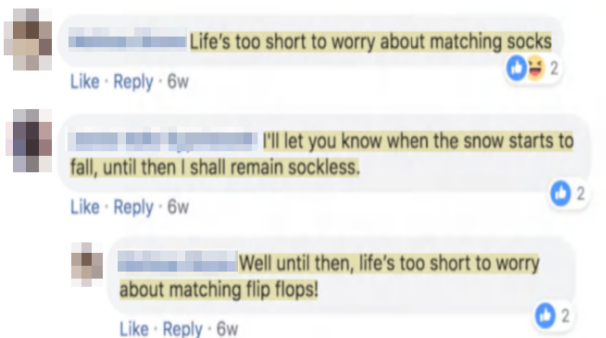
Explanations and Examples for Descriptive Codes Found in Comments to Posts on TinyKittens Unite

Code	Explanation	Example(s)
<p>Supportive (922)</p>	<p>Comments with the <i>Supportive</i> code expressed any type of support towards the poster (or another commenter). Not all <i>Supportive</i> comments were explicit.</p> <p>While <i>Power of the Paw</i> is a supportive statement, these comments were coded separately.</p>	


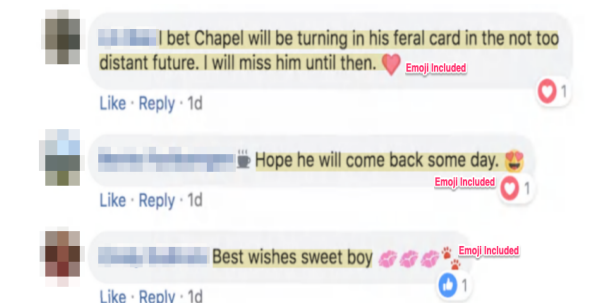
Code	Explanation	Example(s)
Personal Story (324)	<p>Comments that included a <i>Personal Story</i> code were somewhat similar to comments that included an <i>Explanation</i>. The <i>Personal Story</i> code was used when the story or explanation was obviously personal in nature, whereas the <i>Explanation</i> code was used for comments that provided factual context. (This is the same way the two codes were treated in the TKU Posts sub-group.)</p> <p>Some community members used personal stories to empathize with the poster, while others used personal stories to provide context for an answer or advice.</p>	 <p>I tried mine with pee pads. It was like she said "what took you so long?" I ordered incontinence pads from a medical supply place after I got her started. She would only pee on the pads, though. She still wanted the litter box to poop in.</p> <p>Like · Reply · 4d</p> <p>Try more boxes. Is there one on every floor? Is it litter he doesn't like? Is it placement? I agree with cat attract. I had a diabetic cat who peed on my couch all the time. I had to keep pee pads down when I wasn't home. Anyway my vet prescribed clomicalm (clomipramine). I got it from a compounding pharmacy and it helped a lot.</p> <p>Like · Reply · 4d</p>
Power of the Paw (308)	<p>The <i>Power of the Paw</i> code was created specifically for the TinyKittens online community. Community members frequently wrote posts on TinyKittens Unite where they asked the community for <i>the power of the paw</i>. In response, members typically replied using a comment where they provide that power via words, the acronym (PoTP), a sticker, an emoji, or a combination of these (as shown in the example).</p>	 <p>Power of the Paw!!!!</p> <p>Like · Reply · 2w</p> <p>Sticker Only</p> <p>Like · Reply · 2w</p> <p>POTP-❤️</p> <p>Like · Reply · 2w</p>

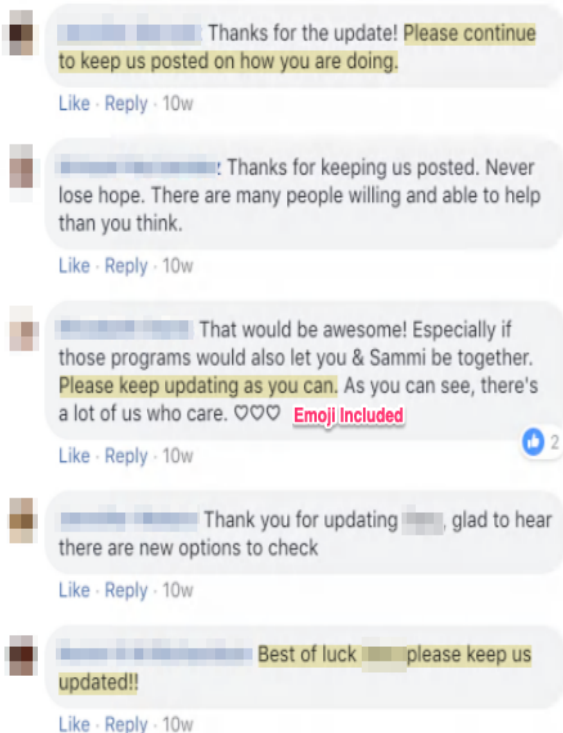
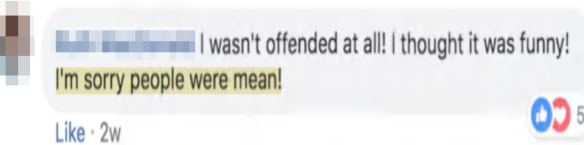
Code	Explanation	Example(s)
Observation (280)	Comments with the <i>Observation</i> code included community members who observed a cat or kitten in a photo or video and stated that the cat or kitten was <i>cute</i> or <i>beautiful</i> . These comments also included community members simply stating a fact or opinion.	
Answer (251)	Comments with the <i>Answer</i> code ranged from one word (e.g., <i>Yes</i>) to full paragraphs. These comments were typically in response to requests or questions asked by a community member in a post, but occasionally were in response to a question asked in another comment.	

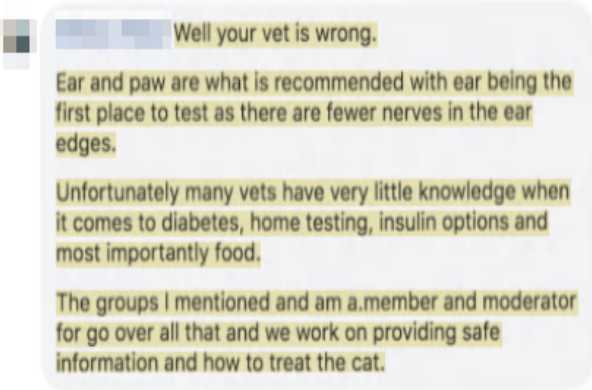
Code	Explanation	Example(s)
Advice (244)	<p>Comments with the <i>Advice</i> code were similar to comments with the <i>Answer</i> code, except the <i>Answer</i> comments were in response to a direct question or request. Whereas the <i>Advice</i> comments provided a community member with some form of advice, even if it was not asked for.</p> <p>Some <i>Advice</i> comments were blunt and borderline rude, while others were polite and empathetic. Some <i>Advice</i> comments told the other community member to take some form of action (e.g., <i>stop feeding her that food immediately</i>), while others told the community member what something may be (e.g., <i>that sounds like it might be a UTI</i>). Some of the action-related <i>Advice</i> comments were even written in capital letters as if to portray urgency.</p> <p>Also, some <i>Advice</i> comments included the community member agreeing with advice provided by someone else. The occasional <i>Advice</i> comment also included a URL which provided evidence for the advice. Advice provided in these comments ranged from very dramatic and panicky to positive and calm. Most of the advice provided was for a cat or kitten, but on occasion the advice was for a human.</p> <p>(In the example provided, the first and third comment included the <i>Advice</i> code. The remaining portions of the first comment were coded as <i>Personal Story</i> and <i>Answer</i>. And the remaining portions of the third comment were coded as <i>Answer</i>, <i>Personal Story</i>, and <i>Funny</i>.)</p>	 <p>  Yep, that can happen sometimes. I had one go off her food even for about 24 hours. If it persists or you notice signs of distress give the vet a call. Otherwise, if they are eating, drinking, and using the litter pan normally all should be fine. Like · Reply · 4w </p> <p>  🐾 Yep, my George, 14 weeks, has just had his final booster on thursday for the year, very sleepy cuddly once home, normal zoomies commenced this morning at 5am! Like · Reply · 4w </p> <p>  Yes. My vet told me once that it's the distemper shots that will dial them down for a day or so. Scooter goes for his booster next Saturday and honestly I'm looking forward to the break. Like · Reply · 4w </p>

Code	Explanation	Example(s)
Gratitude (231)	Almost every comment with the <i>Gratitude</i> code included the words <i>thanks</i> or <i>thank you</i> . Although, on a few occasions, the comment expressed gratitude by using words like <i>appreciate</i> or <i>glad</i> .	 <p>Ugh yes!! Thank you again for this beautiful piece and reminder, of one who touched so many, without even realizing it. ❤️🐾🐾 <small>Emoji Included</small></p> <p>Like · Reply · 5d</p> <p>I cry every time I read it. Thank you again, You are truly gifted with words. ❤️ <small>Emoji Included</small></p> <p>Like · Reply · 5d</p> <p>Thank you for reposting; I wasn't a part of TK. What an angel!</p> <p>Like · Reply · 5d</p>
Explanation (171)	Comments with the <i>Explanation</i> code almost always included other Descriptive Codes. <i>Explanation</i> comments were typically situations where the community member was attempting to put something in context or perspective. Sometimes this context was regarding an <i>Answer</i> or <i>Advice</i> they had provided, in other cases the context included information about their personal situation.	 <p>are you going to make a complaint? Because that is a serious misdiagnose that almost cost you the life of your beloved pet...I would be livid at that vet right now if I was you! And I would be very concerned they were not treating the animals in their care properly...</p> <p>Like · Reply · 8w</p> <p>I am. I wasn't there for the original diagnosis because I had a relative take him to the vet for me while I was away on holiday and that was what the relative told me but I'm going to be having strong words.</p> <p>Like · Reply · 8w</p>
Funny (150)	The <i>Funny</i> code was used in comments which were, well, funny! In some cases, there were multiple consecutive comments where community members joked back and forth, as in the example.	 <p>Life's too short to worry about matching socks</p> <p>Like · Reply · 6w</p> <p>I'll let you know when the snow starts to fall, until then I shall remain sockless.</p> <p>Like · Reply · 6w</p> <p>Well until then, life's too short to worry about matching flip flops!</p> <p>Like · Reply · 6w</p>

Code	Explanation	Example(s)
<p>Follow-up Questions (125)</p>	<p>The <i>Follow-up Questions</i> code was used to highlight any comment, or portion of a comment, that included a question directed back to the community member who wrote the post. In these cases, the commenter required additional information from the poster in order to fulfill a request or answer a question. However, there were certain situations where the commenter was simply curious about something the poster said (or did not say).</p> <p>The majority of comments with a <i>Follow-up Question</i> code did receive a reply. The reply was usually from the poster, but in situations where the follow-up question had already been asked and answered, a second commenter responded in order to direct the first commenter to the answer (but not always politely).</p>	 <p>The screenshot shows a forum post with a follow-up question: "Fever = infection/inflammation. Is he on antibiotics?". The reply provides medical advice: "Blood in his stool or on it points to irritation of his insides. Consider IBD, EPI, pancreatitis. There is a blood test for all of those, the GI Panel 2, but you did mention thyroid so I'd try addressing that first." It also lists symptoms: "How is his 'output'? Poo, pee? Is he constipated? That can make him: 1. lose his appetite because if he's backed up enough it makes him feel 'full' so he won't eat 2. feel crappy 3. have a little blood from the straining". It concludes with hydration advice: "Also check his hydration level (pinch the scruff and see how fast it snaps back--fast = hydrated, slow = dehydrated). Being dehydrated can make a cat feel like crap, too." and "POTP!".</p>
<p>Sticker Only (161) Video / Photo / GIF Only (81) Emoji Only (60)</p>	<p>Comments with one of these codes did not include any text. Instead, they included one or more sticker, video, photo, GIF, or emoji.</p>	 <p>The screenshots show three examples of non-textual comments: 1. A "Sticker" featuring a paw print icon. 2. A "Photo" of a white cat with the text "PAW POWER!!!!". 3. "Emojis" consisting of a row of colorful icons.</p>

Code	Explanation	Example(s)
<p>Suggestion (57)</p>	<p>Unlike comments with the <i>Advice</i> code, comments with the <i>Suggestion</i> code were from community members providing suggestions on something that was not asked for. <i>Suggestions</i> (unlike <i>Advice</i>) were more likely to be polite.</p> <p>Many <i>Suggestions</i> were worded in such a way that the community member mentioned an action that <i>could</i> be taken, rather than an action that <i>should</i> be taken. Some Suggestion comments even came across as uncertain (e.g., <i>maybe you could try ...</i>).</p>	 <p>Example 1: "And actually, I boiled with the rind on, because the squash is easier to scoop out of the rind, after. I agree, they are tough to peel." (Like · Reply · 4w · Edited)</p> <p>Example 2: "It takes about 15 mins for an average sized one in the microwave, an hour + in the oven. Oven can dry the top a bit so keep an eye on it or cover. You can always make a trial batch and see if the cat eats it. You can then eat the rest of it yourself for dinner if the cat does not want to cooperate 😊 Emoji Included" (Like · Reply · 4w)</p> <p>Example 3: "Haha, sounds like a plan.. she's the fuzziest eater you can find tho 🤔 Emoji Included" (Like · Reply · 4w)</p> <p>Example 4: "Can you get ground psyllium fibre? It's easier to use than pumpkin!" (Like · Reply · 4w)</p> <p>Example 5: "I'm using psyllium for my girl, too - bought a pack of just pain psyllium, soak a tsp of it in water and add it to her wet food (which she prefers). Has done wonders for her constipation!" (Like · Reply · 4w)</p>
<p>Statement (56)</p>	<p>Comments with the <i>Statement</i> code were usually a community member making a statement about something they thought or felt. In many cases, the statement was written as an expression of hope.</p>	 <p>Example 1: "I bet Chapel will be turning in his feral card in the not too distant future. I will miss him until then. ❤️ Emoji Included" (Like · Reply · 1d)</p> <p>Example 2: "Hope he will come back some day. 🙏 Emoji Included" (Like · Reply · 1d)</p> <p>Example 3: "Best wishes sweet boy 🌸🌸🌸 Emoji Included" (Like · Reply · 1d)</p>

Code	Explanation	Example(s)
Request (33)	Almost all the comments with the <i>Request</i> code asked the community member who wrote the post to keep everyone up-to-date on whatever situation was being discussed.	
Apology (10)	Some of the comments with the <i>Apology</i> code were community members expressing condolences to the poster (or another commenter). But these comments also included community members apologizing to a poster or commenter for rude comments they had received (such as in the example provided).	

Code	Explanation	Example(s)
<p>Critical (10)</p>	<p>Comments with the <i>Critical</i> code were usually passive aggressive in nature, where the community member expressed an opinion in a sarcastic manner. Some <i>Critical</i> comments were downright blunt and rude.</p> <p><i>Critical</i> comments were usually directed at something another commenter had said (as opposed to the poster), usually a piece of advice for which there is a disagreement.</p>	 <p>Well your vet is wrong.</p> <p>Ear and paw are what is recommended with ear being the first place to test as there are fewer nerves in the ear edges.</p> <p>Unfortunately many vets have very little knowledge when it comes to diabetes, home testing, insulin options and most importantly food.</p> <p>The groups I mentioned and am a member and moderator for go over all that and we work on providing safe information and how to treat the cat.</p> <p>Like · Reply · 4w</p>

Note: Examples are from the TinyKittens Unite Facebook page only.

5.3.3.5 Information Exchanged

The Descriptive Codes were specifically designed to find the types of information exchanged by the TinyKittens online community. Based on these findings, they did a great job. It is important to look at Descriptive Codes by sub-group, at least to start. This is because the four sub-groups represent different enough situations as to cause differences in the information exchanged.

At 243 posts over six months, or an average of 41 posts per month (which is more than one post per day), Shelly is a prolific Facebook poster. And that average does not count the fifth official Facebook page, Twitter, or Instagram. Based on the Descriptive Codes, we can draw the following conclusions about the information exchanged via Shelly's posts:

- When Shelly shares information with the community, she tends to do so in detail and almost always provides context, possibly because she does not want to be misinterpreted.
- Between the four official pages, Shelly includes a photo or a video in three quarters of her posts. This could be because she knows a picture can represent a thousand words and can portray more information than what she could write. Or because she knows community members are there because of the cats and kittens, therefore, show them what they want!
- The majority of Shelly's posts include an announcement of some kind. And, almost all those announcements pertain to TinyKittens. Shelly very rarely, if ever, writes about herself or any topic not cat-related. Her messaging, in general, is very focused.
- When Shelly provides announcements or advertisements, she almost always includes one or more URL for the TinyKittens website. Most likely she does this because it allows community members to click directly on the URL and go to the webpage without needing to exert much effort.
- Shelly occasionally includes advocacy messages in her posts, usually in conjunction with information about TNR or cat overpopulation. If she can find a teachable moment, she tends to use it to her advantage.

- Shelly takes the time to thank people and organizations for donations and the time they put towards TinyKittens. She does not seem to take for granted the fact that the popularity of TinyKittens is a sure thing.

Shelly receives, on average, 296 comments for every post. Based on the Descriptive Codes, we can draw the following conclusions about the information exchanged via the comments to Shelly's posts:

- The most common type of comment Shelly receives is supportive in nature. I believe it is safe to assume that if Shelly writes a post about an activity she is going to do or a decision she has made, she will receive a lot of support for it.
- Community members make a lot of observational comments, mainly about the attached photos or videos. Those observations are almost always positive and about a cat or kitten. If Shelly posts a photo or video, community members are going to talk about it.
- Community members very rarely criticize or question Shelly for anything she posts.²⁴ And when criticism is mentioned, Shelly can be sure that she will have quite a few community members come to her defense.

Seventy-one posts from TinyKittens Unite, written by 62 different community members, were coded. Based on the Descriptive Codes, we can draw the following conclusions about the information exchanged via TinyKittens Unite posts:

- More often than not, a post on TinyKittens Unite includes personal information. In general, TinyKittens Unite members appear very open and transparent about their personal lives. This likely means that very few, if any, Facebook accounts used by TinyKittens Unite members are fake. In my personal opinion, I do not think this means members do not care about online privacy, but rather feel they can trust fellow members to be respectful.
- When a TinyKittens Unite member shares personal information or makes a request, they frequently provide the community with updates. In other words, they appear committed to the community for the long-term. They are not on

24. I find this to be a very interesting finding. Why do community members not question Shelly's actions more often? Is it because they truly trust everything she says and does? Because she really does make the best decisions? Or because they are somehow enamored with her to the point of not being able to comprehend she is capable of doing anything bad? Without surveying community members, it is unlikely I will be able to answer these questions.

TinyKittens Unite for quick gratification. I would even venture to say that members may feel TinyKittens (and TinyKittens Unite) is like a big family.

- TinyKittens Unite members look to the community for answers and advice (which they receive, even if they do not want it!). The fact that they are requesting/asking for assistance seems to indicate that they trust that fellow community members have the information they need, or know where to get the information they need.
- Between the personal stories and asking for advice, there appears to be a lot of trust within the TinyKittens Unite community.

The 71 in-scope TinyKittens Unite posts received 2,733 comments. That is an average of 39 comments per post (much less than Shelly receives, but still a decent number). Based on the Descriptive Codes, we can draw the following conclusions about the information exchanged via comments to TinyKittens Unite posts:

- As with comments to Shelly's posts, TinyKittens Unite comments are overwhelmingly supportive. If a community member asks for support or seems to need support, they receive it.
- TinyKittens Unite comments, like the posts, include a lot of personal information. In some ways, it comes across as an *I'll scratch your back, you scratch mine* situation, where the poster shares personal information and in exchange, the commenter shares personal information. Some personal stories were meant to show empathy (e.g., *I know how you feel, here's my story*) and others were to provide context or perspective (e.g., *I tried this and this is what happened to my cat*).
- Community members on TinyKittens Unite want to help their fellow community members. They frequently answer questions and provide advice. It appears that if a community members has information they think is useful to someone else, they are happy to share it.

Only Shelly (obviously) writes Shelly's posts. But anyone with a Facebook account can comment on Shelly's posts, which I will refer to as the larger TinyKittens online community. Anyone who is a member of the TinyKittens Unite closed group can write a post or a comment, which I will refer to as a sub-group of the TinyKittens online community. Everyone who is a member of TinyKittens Unite is also a member

of the larger TinyKittens online community. But not everyone who is a member of the larger TinyKittens online community is a member of TinyKittens Unite. There appears to be a lot of similarity between the information exchanged via comments to Shelly's posts and comments to TinyKittens Unite posts, which makes sense if one is a sub-group of the other. But as outlined, there are several differences between Shelly's posts and TinyKittens Unite members' posts.

5.3.3.6 Evidence for the Community-Based (Virtual) Human-Animal Bond

First and foremost, based on the Descriptive Codes used most often, I believe it is safe to say that TinyKittens members view themselves as a community, behave as if they are part of a community, and experience events together as a community.

The fact that almost all the information being exchanged in the TinyKittens online community is related to cats or kittens indicates they are all passionate about that one very specific interest. They get pleasure and comfort out of watching and talking about cats and kittens, which are the same results as the human-animal bond.

5.3.4 Values Codes

The text coded with one of the three Values Codes provide an interesting insight into what the TinyKittens online community believes is important, how they think or feel about very specific (sometimes controversial) topics, and what points-of-view they believe are true or accurate. Only statements that were obviously talking about a value, attitude, or belief were coded.

The following are examples of statements that were coded with one of the three Values Codes, divided between posts from Shelly and posts or comments from community members. Based on the way many community members responded to these types of posts from Shelly, it is likely not a stretch to assume many of them have been influenced by Shelly. They have either developed values, attitudes, or beliefs, or have changed values, attitudes, or beliefs, based on something Shelly has said or written.

Taking all the Attitude, Belief, and Value statements expressed by the TinyKittens community, including Shelly, into account, the following summarizes what TinyKittens is about:

- All cats, kittens, and animals—feral, stray, or owned—are important and deserve respect and compassion.
- Cat overpopulation is a problem and trap-neuter-return programs are the only way to solve this problem.
- Spaying and neutering cats and kittens is vital to the success of reducing cat overpopulation and suffering.

5.3.4.1 Attitude Codes

All but one of the 15 statements coded as Attitude were written by Shelly. The following are specific Attitude statements from Shelly,

- *We have a feeling seeing these three very different ferals go through their final pregnancies together will really illustrate that each feral cat is an individual with their own purrsonality.*
- *The tragic reality of cat overpopulation is that many kittens are born without the infrastructure they need to survive.*
- *2017 showed us that even at our most broken we can still make a difference. It taught us the true meaning of fortitude.*
- *We are thrilled he will be pain-free and neutered so he can experience the carefree healthy life he deserves.*

5.3.4.2 Belief Codes

There were 47 items coded as Belief. Of those, 38 (or 81%) were from Shelly. This first set of examples are Belief statements from Shelly,

- *Because spay/neuter = LUV.*
- *Spaying and neutering is the ONLY way to prevent kittens like Aura and B-Rex from the suffering caused by cat overpopulation.*
- *If you can't commit to volunteering or supporting local TNR efforts in other ways you can still make a huge difference by becoming an advocate for spaying and neutering.*
- *Feral cats are incredibly sensitive social creatures capable of great love and compassion when given a chance.*

This second set of examples are Belief statements from members of the TinyKittens community,

- *He so deserves this pampered life he now has with you.*
- *That moment when they decide to trust you is magical.*
- *I believe the universe helps those who help others.*
- *Suicide is a permanent solution to a temporary problem.*

5.3.4.3 Value Codes

There were 56 items coded as Value. Of those, 43 (or 77%) were from Shelly. This first set of examples are Value statements from Shelly,

- *As with all our cats and kittens we will do everything in our power to save her as long as she is not suffering.*
- *We will make sure we continue to tell their story so they inspire as many people as possible to take action to help others like them.*
- *One person can make a HUGE difference in the lives of these vulnerable yet remarkable cats.*
- *We have the responsibility to make the decision that is in the best interest of each individual cat.*

This second set of examples are Value statements from members of the TinyKittens community,

- *Every life matters.*
- *Too often the helpers/caretakers don't get the recognition they deserve.*
- *He will be so excited to see him, that's what's important.*
- *Teach the public an important lesson that we must spay and neuter and we must care about feral cats.*

5.3.4.4 Information Exchanged

The Values Codes provide insight into some of the information exchanged in the TinyKittens online community. Values, attitudes, and beliefs are by no means a hot topic in the TinyKittens online community, but they are also not shied away from.

When it is appropriate, values, attitudes, and beliefs are shared amongst community members.

Having said that, the majority of the Values Codes were used on posts written by Shelly, which means that Shelly is more often the community member sharing a value, attitude, or belief. This is not surprising as many would consider Shelly the leader of the community and an expert on cat-related topics. Many community members look up to Shelly (as a hero? mentor? role model? idol?) and trust what she says to be the truth or the way things *should* be.

5.3.4.5 Evidence for the Community-Based (Virtual) Human-Animal Bond

From a community perspective, I do not believe these findings progress this idea much farther, other than to show that TinyKittens online community members do not appear to disagree with the value, attitudes, and beliefs expressed by Shelly. Since they do not appear to disagree, I am going to assume this means they agree with the majority of these values, attitudes, and beliefs and that these values, attitudes, and beliefs make up a part of the fabric from which the community is made.

From a human-animal bond perspective, the major themes from the values, attitudes, and beliefs expressed—that cats deserve respect and compassion, that cat overpopulation is a problem, that TNR is a solution, and that spaying and neutering cats reduces overpopulation and suffering—are all cat-related. And, they all imply that a bond between humans and cats is a valuable one that should be respected.

5.3.5 Folk Terms

The TinyKittens online community has, over time, developed its own unique set of words and phrases, or vocabulary, to describe names, events, places, and items. As part of the coding process, I coded all folk terms in order to create a list. Once that list was created, I used a text search query in NVivo to determine how often each term was used in the full data set.

Not all folk terms used by the TinyKittens online community were created by the community. Some of the terms (e.g., elevator butt, blep, gingers, etc.) are taken from other cat-related Facebook pages, websites, or memes, but used regularly on TinyKittens.

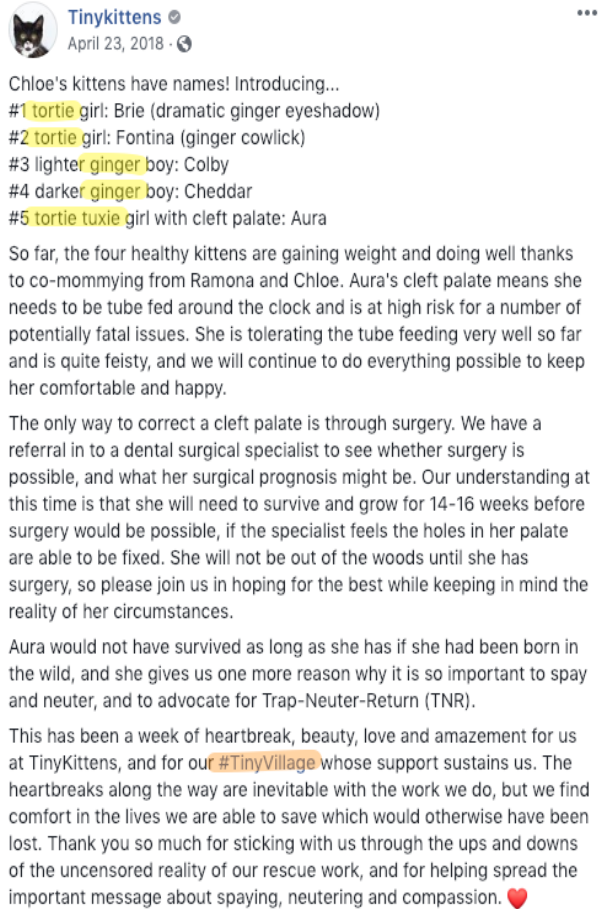
The following sections provide examples of the folk terms I found and their definitions. The last section provides a summary of the most frequently used folk terms from the full data set. Each definition includes an example from one of the in-scope Facebook pages. Within the examples, words highlighted in yellow show the folk term being defined, while words highlighted in orange show other folk terms that appeared in the same post.


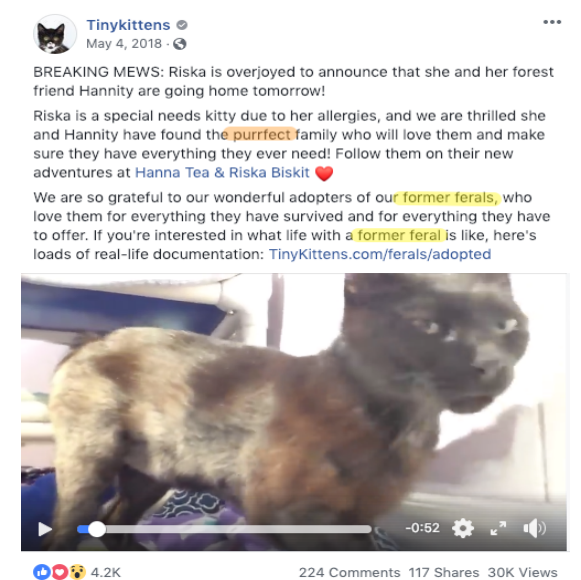
5.3.5.1 Names

Folk terms for names are used in two ways: either when referring to a *specific* cat, kitten, or person; or when referring to a *type* of cat, kitten, or person. A list of some of those name folk terms can be found in Table 14, along with their definitions and an example.



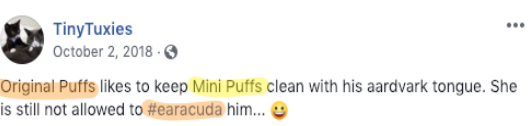

Table 14


Examples of Folk Terms for Names Found in the TinyKittens Online Community

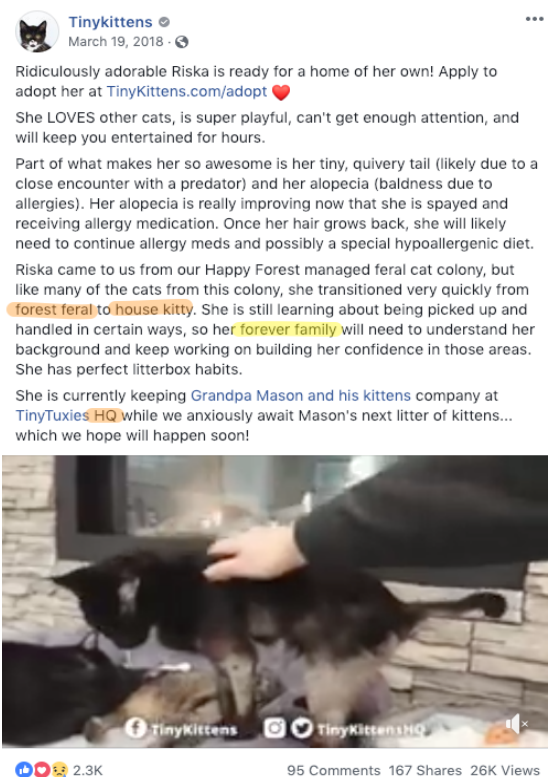
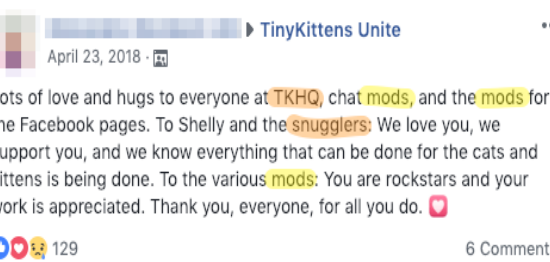
Folk Term	Definition	Example(s)
Tuxie	Refers to the <i>type</i> of cat or kitten based on the colour of their coat.	 <p>TinyKittens ✓ April 23, 2018 · 🌐</p> <p>Chloe's kittens have names! Introducing...</p> <p>#1 tortie girl: Brie (dramatic ginger eyeshadow)</p> <p>#2 tortie girl: Fontina (ginger cowlick)</p> <p>#3 lighter ginger boy: Colby</p> <p>#4 darker ginger boy: Cheddar</p> <p>#5 tortie tuxie girl with cleft palate: Aura</p> <p>So far, the four healthy kittens are gaining weight and doing well thanks to co-mommying from Ramona and Chloe. Aura's cleft palate means she needs to be tube fed around the clock and is at high risk for a number of potentially fatal issues. She is tolerating the tube feeding very well so far and is quite feisty, and we will continue to do everything possible to keep her comfortable and happy.</p> <p>The only way to correct a cleft palate is through surgery. We have a referral in to a dental surgical specialist to see whether surgery is possible, and what her surgical prognosis might be. Our understanding at this time is that she will need to survive and grow for 14-16 weeks before surgery would be possible, if the specialist feels the holes in her palate are able to be fixed. She will not be out of the woods until she has surgery, so please join us in hoping for the best while keeping in mind the reality of her circumstances.</p> <p>Aura would not have survived as long as she has if she had been born in the wild, and she gives us one more reason why it is so important to spay and neuter, and to advocate for Trap-Neuter-Return (TNR).</p> <p>This has been a week of heartbreak, beauty, love and amazement for us at TinyKittens, and for our #TinyVillage whose support sustains us. The heartbreaks along the way are inevitable with the work we do, but we find comfort in the lives we are able to save which would otherwise have been lost. Thank you so much for sticking with us through the ups and downs of the uncensored reality of our rescue work, and for helping spread the important message about spaying, neutering and compassion. ❤️</p>
Ginger	Tuxies are mostly black or grey with white feet and white spots. Gingers are orange. Calicos have a mixture of orange, black, and white. Torties have a mixture of just orange and black. And Panthers are all black.	
Tabby		
Calico		
Tortie	Tabbies can be any of the above, with one of two stripe patterns: classical or mackerel.	
Panther		
Torbie		

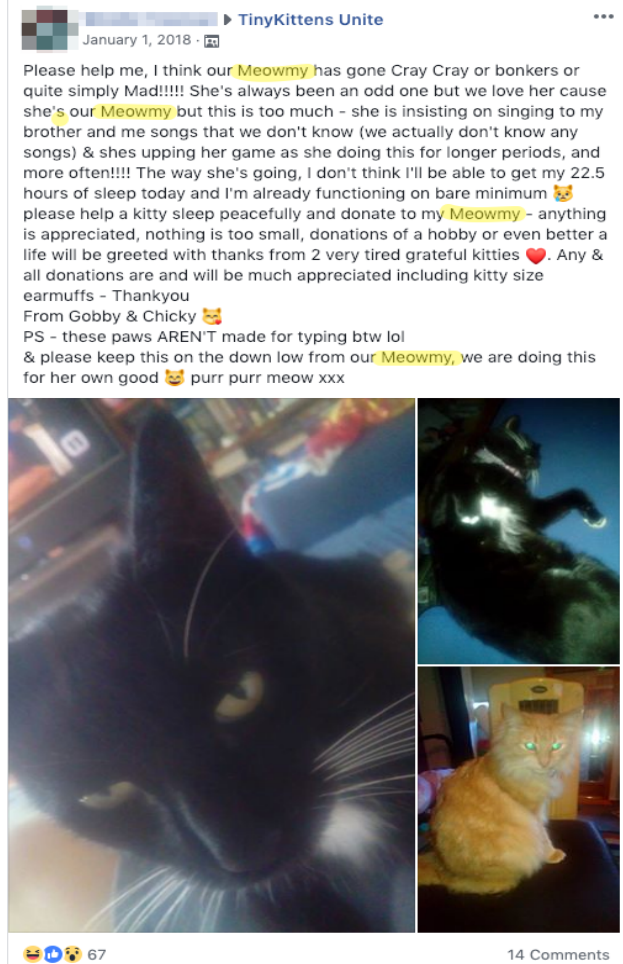
Folk Term	Definition	Example(s)
Twingers	Refers to two ginger cats from the same litter (i.e., twin-gingers).	 <p>Tinykittens August 3, 2018 · 🌐</p> <p>Grandpa Mason is getting a little last-minute milkbar in with the twingers before they go to their forever home. 😊 We will post their FB page as soon as we have it. 😊</p> <p>4.6K 288 Comments 245 Shares 43K Views</p>
Former Feral	Refers to any cat or kitten who was born feral, but has been socialized to live with humans. Community members often refer to these cats as having <i>turned in their feral card</i> .	 <p>Tinykittens May 4, 2018 · 🌐</p> <p>BREAKING MEWS: Riska is overjoyed to announce that she and her forest friend Hannity are going home tomorrow! Riska is a special needs kitty due to her allergies, and we are thrilled she and Hannity have found the purrfect family who will love them and make sure they have everything they ever need! Follow them on their new adventures at Hanna Tea & Riska Biskit ❤️ We are so grateful to our wonderful adopters of our former ferals, who love them for everything they have survived and for everything they have to offer. If you're interested in what life with a former feral is like, here's loads of real-life documentation: TinyKittens.com/ferals/adopted</p> <p>4.2K 224 Comments 117 Shares 30K Views</p>


Folk Term	Definition	Example(s)
Catermelon	Refers to any pregnant cat who is near the end of her pregnancy and is very round. Visually, she looks like she swallowed a watermelon.	
Bottle Baby	Refers to any kitten who does not have a momma cat and who needs to be bottle fed.	

Folk Term	Definition	Example(s)
The Miracle Kitten	Refers specifically to Cassidy. He is a former feral, found with his brother Topper when they were nine-weeks-old. Cassidy's back feet were chewed off by his mother at birth. He required many medical procedures. Cassidy is known to <i>not</i> make good choices.	  <p>1.4K others 80 Comments 27 Shares 13K Views</p>
Miracle Puffs		
Puff Puffs		
Puffs		
Cass		
Cassaroll		
Original Puffs		
Auradorable	Refers specifically to Aura, a kitten born in April 2018 to Chloe. Aura was born with a severe cleft palate and needed to be tube fed until she was old enough to eat kibble. She has since had surgery to repair her palate where a piece of a bone from a dog was surgically attached to the roof of her mouth.	  <p>1.5K others 101 Comments 46 Shares 15K Views</p>
Auracuda		
Mini Puffs		

Folk Term	Definition	Example(s)
Chlomona	Refers specifically to Chloe and Ramona (i.e., Chlo + Mona), two feral momma cats who gave birth in April 2018. During labour and while raising their kittens, these two momma cats were inseparable. However, as the kittens got older, Ramona decided she did not like humans and was returned to the Happy Forest. Chloe was adopted.	

Folk Term	Definition	Example(s)
<p>Forever Family</p>	<p>Refers to the human(s) who adopt a cat or kitten.</p>	 <p>TinyKittens • March 19, 2018 · 🌐</p> <p>Ridiculously adorable Riska is ready for a home of her own! Apply to adopt her at TinyKittens.com/adopt ❤️</p> <p>She LOVES other cats, is super playful, can't get enough attention, and will keep you entertained for hours.</p> <p>Part of what makes her so awesome is her tiny, quivery tail (likely due to a close encounter with a predator) and her alopecia (baldness due to allergies). Her alopecia is really improving now that she is spayed and receiving allergy medication. Once her hair grows back, she will likely need to continue allergy meds and possibly a special hypoallergenic diet.</p> <p>Riska came to us from our Happy Forest managed feral cat colony, but like many of the cats from this colony, she transitioned very quickly from forest feral to house kitty. She is still learning about being picked up and handled in certain ways, so her forever family will need to understand her background and keep working on building her confidence in those areas. She has perfect litterbox habits.</p> <p>She is currently keeping Grandpa Mason and his kittens company at TinyTuxies HQ while we anxiously await Mason's next litter of kittens... which we hope will happen soon!</p> <p>2.3K likes, 95 Comments, 167 Shares, 26K Views</p>
<p>Mods</p>	<p>Refers to the chat moderators on the TinyKittens YouTube live video streams.</p>	 <p>TinyKittens Unite • April 23, 2018 · 🌐</p> <p>Lots of love and hugs to everyone at TKHQ, chat mods, and the mods for the Facebook pages. To Shelly and the snugglers: We love you, we support you, and we know everything that can be done for the cats and kittens is being done. To the various mods: You are rockstars and your work is appreciated. Thank you, everyone, for all you do. 💖</p> <p>129 likes, 6 Comments</p>

Folk Term	Definition	Example(s)
Meowmy	Refers to a human mommy of a cat or kitten.	


Folk Term	Definition	Example(s)
Grandpaw	Refers specifically to Grandpa Mason, a formerly feral senior cat with kidney disease. Mason could not be returned to his colony as he requires daily medication. Mason is also the adoptive grandfather of all kittens at TinyKittens.	 <p> [Profile Picture] TinyKittens Unite June 20, 2018 · 🌐 </p> <p> What is this kitten thinking? A. I'm tired B. I just left grandpaw Mason,s hair salon C. This is the last picture of my nether regions you'll see intact </p> <p> [Video: A tabby kitten walking in a room with a window and a cat tree.] </p> <p> 👍❤️ 178 others 20 Comments </p>


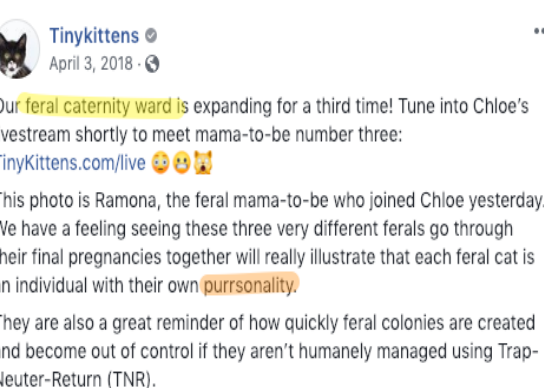
5.3.5.2 Places



Folk terms for places are used to either refer to a *specific* location or a *type* of location. Some of these words—like *sink*—are not unique words, but the way in which they are used in the TinyKittens online community is specific to the community. A list of some of those place folk terms can be found in Table 15, along with their definitions and an example.

Table 15

Examples of Folk Terms for Places Found in the TinyKittens Online Community

Folk Term	Definition	Example(s)
Sink	Refers to any sink that a cat or kitten decides to use as a bed. Often times that cat or kitten is then referred to as a sink cat. This is also a common meme for cats on the internet. At TinyKittens, the term started with Skye, who was housed in a large bathroom and preferred the sink over any other location in the room.	

Folk Term	Definition	Example(s)
Wedge	<p>Refers to the space between the wall and the back of a nest cabinet. Discovered to be a favourite place of momma cats, usually to hide or avoid the nest. Momma cats have also been known to use the wedge in order to take a break from their kittens. It is not unusual for kittens, once they learn to walk, to accidentally fall into the wedge.</p>	
Wedge of Solitude	<p>Refers to the space between the wall and the back of a nest cabinet. Discovered to be a favourite place of momma cats, usually to hide or avoid the nest. Momma cats have also been known to use the wedge in order to take a break from their kittens. It is not unusual for kittens, once they learn to walk, to accidentally fall into the wedge.</p>	
WOS	<p>The example provided does not include the term <i>wedge</i>, but the photo shows a visual of a momma cat (Chloe) using a wedge for a nap.</p>	
Caternity Ward	<p>Refers to any room at TinyKittens that is used to house pregnant cats or momma cats and their kittens. It is not unusual for TinyKittens to have more than one caternity ward during kitten season.</p>	

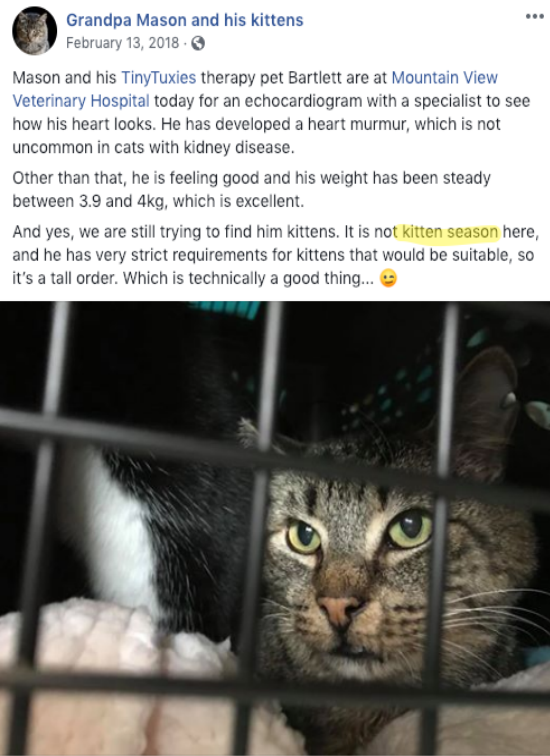
Folk Term	Definition	Example(s)
<p>Rainbow Bridge</p>	<p>Refers to the place where all cats and kittens (and pets in general) go after they die. This is a common term used amongst pet lovers and is based on an extremely sad poem.</p>	
<p>HQ</p>	<p>Short form for Head Quarters. Used in conjunction with TinyKittens or TinyTuxies to refer to a specific location (i.e., TinyKittens HQ or TKHQ). Usually TKHQ and TTHQ are two different locations, but in 2018 they were the same location (Shelly's house).</p>	

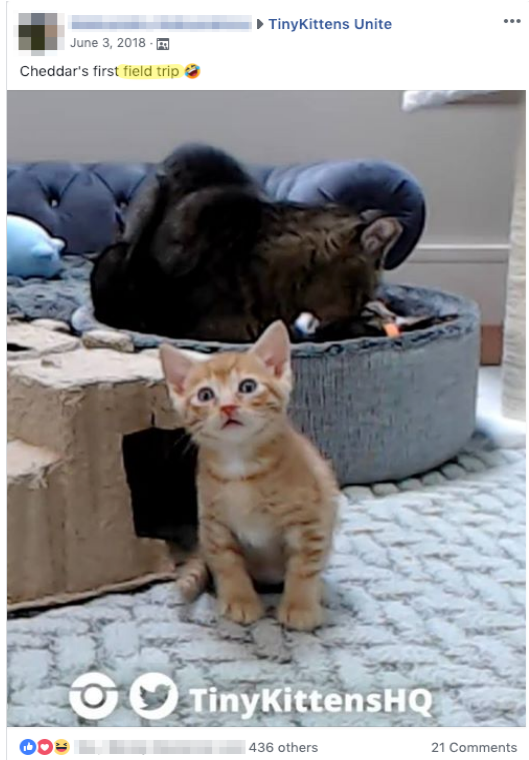

5.3.5.3 Events

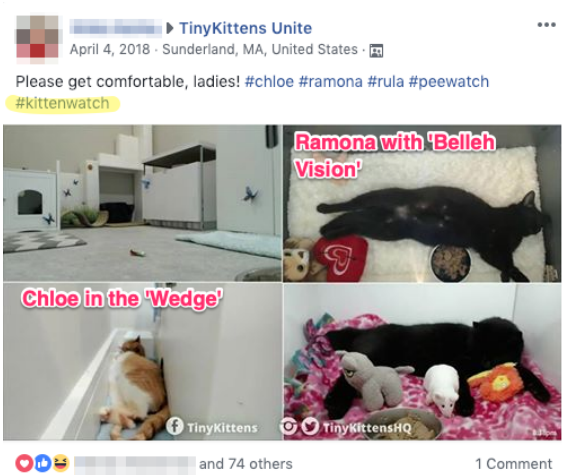
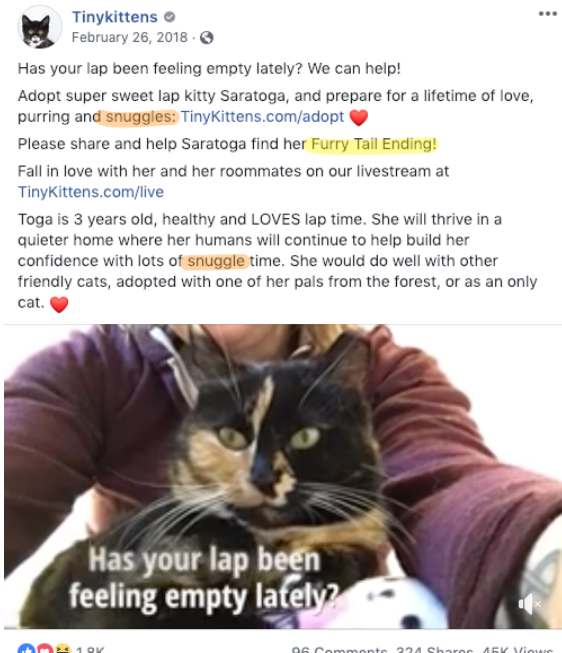
Folk terms for events are used to describe a *specific* event happening at a *specific* time, or for a general *type* of event. A list of some of those event folk terms can be found in Table 16, along with their definitions and an example.


Table 16

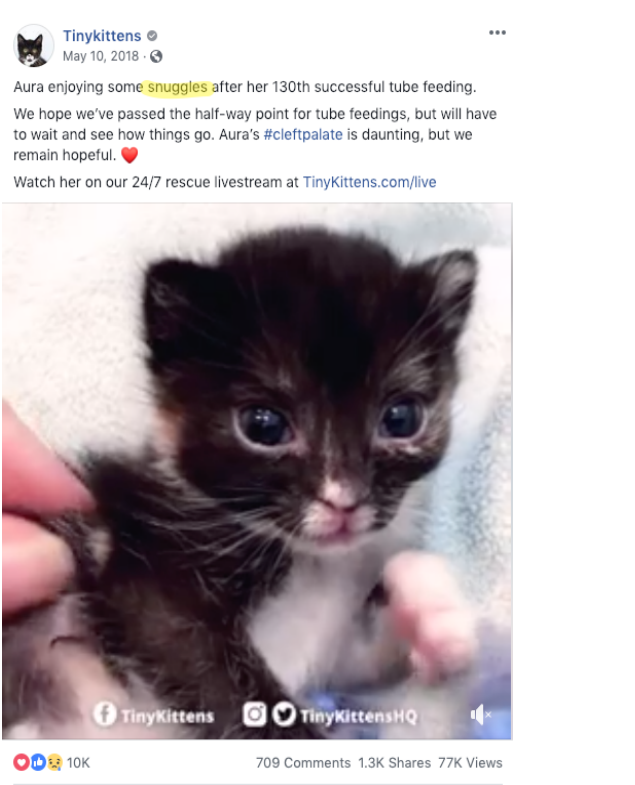
Examples of Folk Terms for Events Found in the TinyKittens Online Community

Folk Term	Definition	Example
Kitten Season	Refers to the time of year (spring) when most female feral cats start getting pregnant and having kittens. Can last several months.	 <p>Grandpa Mason and his kittens February 13, 2018 · 🌐</p> <p>Mason and his TinyTuxies therapy pet Bartlett are at Mountain View Veterinary Hospital today for an echocardiogram with a specialist to see how his heart looks. He has developed a heart murmur, which is not uncommon in cats with kidney disease.</p> <p>Other than that, he is feeling good and his weight has been steady between 3.9 and 4kg, which is excellent.</p> <p>And yes, we are still trying to find him kittens. It is not kitten season here, and he has very strict requirements for kittens that would be suitable, so it's a tall order. Which is technically a good thing... 😊</p> <p>3.4K others 261 Comments 56 Shares</p>

Folk Term	Definition	Example
<p>Field Trips</p>	<p>Refers to the trips kittens make when visiting Grandpa Mason. The purpose of these trips is to have Grandpa Mason teach the kittens how to cat.</p>	
<p>Belleh Vision #BellehVision</p>	<p>Refers to the stage of pregnancy when it is possible to see the kittens moving around inside the momma cat's belly. It looks like the momma cat's insides are boiling. The term is often used to announce such an event is happening on the live video stream so community members can go watch.</p>	

Folk Term	Definition	Example
<p>Kitten Watch</p>	<p>Refers to the time when a pregnant cat is getting close to giving birth. When the term is announced by Shelly, the number of viewers on the live video stream usually increases.</p>	
<p>Furry Tail Endings</p>	<p>Refers to the happy ending cats or kittens have when they are adopted into a forever family.</p>	

Folk Term	Definition	Example
<p>Adoptiversary</p>	<p>Refers to the date on which a cat or kitten was adopted by their forever family. Sometimes celebrated by that family on an annual basis.</p>	

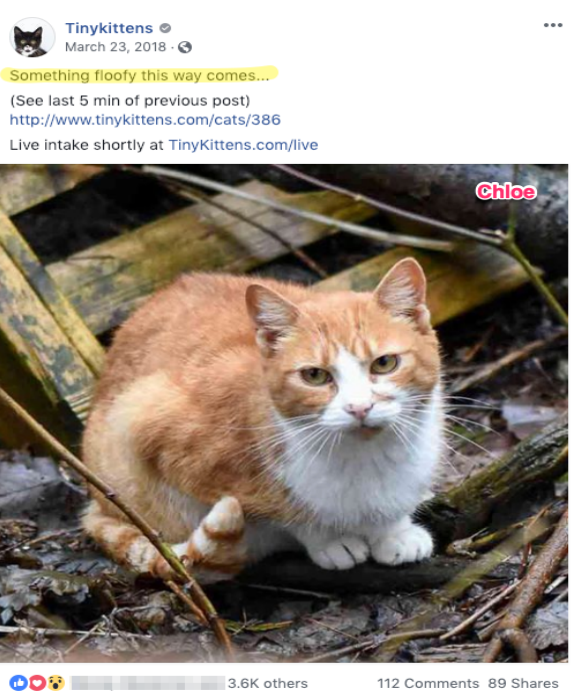
Folk Term	Definition	Example
Snuggles	Refers to anytime two or more cats or kittens are cuddling together. It can also refer to when a cat or kitten is cuddling with a human.	


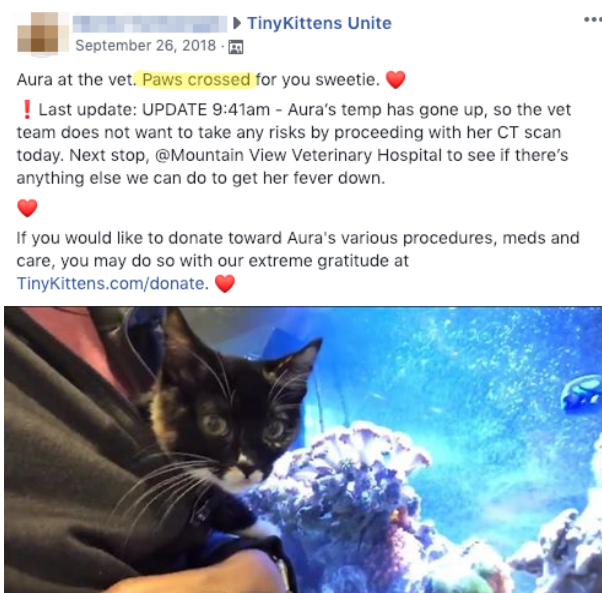
5.3.5.4 Phrases

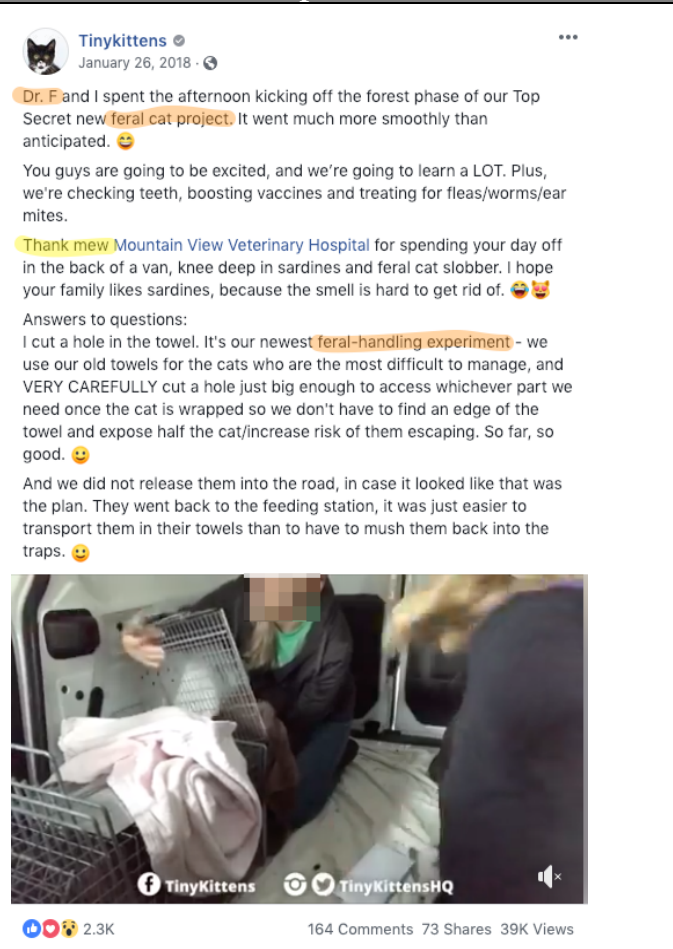
The TinyKittens online community also uses several unique phrases in their communications with each other. Many of these phrases were created by accident when someone used the phrase on one of the social media accounts and other community members continued to use it. A list of some of those phrases can be found in Table 17, along with their definitions and an example.

Table 17







Examples of Folk Terms Phrases Found in the TinyKittens Online Community



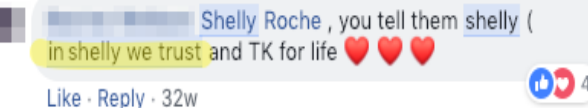
Folk Term	Definition	Example(s)
<i>Something floofy this way comes</i>	Used by Shelly to announce that new cats or kittens are on their way to TinyKittens for intake. It is a play on a song from the Harry Potter movies.	



Folk Term	Definition	Example(s)
<p><i>Make good choices</i></p> <p><i>Making good choices</i></p>	<p>Originally used by Shelly (and now used by all community members) to refer to Cassidy's ability to always get into trouble.</p>	
<p><i>Paws Crossed</i></p>	<p>A play on the phrase <i>fingers crossed</i>.</p>	

Folk Term	Definition	Example(s)
<i>Thank Mew</i>	A play on the phrase <i>thank you</i> .	
<i>Thank Meow</i>		

Folk Term	Definition	Example(s)
<i>Right Meow</i>	A play on the phrase <i>right now</i> .	
<i>Breaking Mews</i>	A play on either <i>breaking news</i> , <i>big news</i> , or <i>exciting news</i> . Normally used by Shelly when she has an announcement.	
<i>Big Mews</i>		
<i>Exciting Mews</i>		

Folk Term	Definition	Example(s)
<p><i>Spay Me Now</i></p>	<p>Refers to the look a momma cat has when she is sick and tired of having kittens around, either being rambunctious or trying to nurse.</p>	<div> <p>Tinykittens  May 25, 2018 · </p> <p>Chloe says "spay me now" whilst tolerating face-punches from Aura. 😊 Watch LIVE 24/7: TinyKittens.com/live</p> <p>Chloe is going to need a very special home once her kittens are weaned and her health issues are addressed! She is very affectionate, loves other cats, and would be a delightful addition to any family. It is likely she has kidney disease and will need a special diet, medication and diligent medical care, but she's so worth it!</p> <p>She would love to be adopted with her sister-mom, Ramona. Ramona is healthy, loves Chloe and other cats, and is still very shy around people. She will need lots of time, patience and love in order to blossom into the house panther she deserves to be. ❤️</p> <p>For information about adoption: TinyKittens.com/adopt</p> </div> <div>  </div> <div> <p>   6.3K 285 Comments 630 Shares 51K Views</p> </div>

Folk Term	Definition	Example(s)
<p><i>Trojan petting</i></p> <p><i>Stealth petting</i></p>	<p>Refers to the way in which Shelly has to pet Grandpa Mason. While he now lives with her, he is still not overly tolerant of humans and prefers not to be touched. Ironically, of course, he does like to be pet, he just does not want to know it is a human doing it.</p>	
<p><i>Power of the Paw</i></p>	<p>Used by everyone in the TinyKittens online community when asking for or providing support. Is often accompanied by a sticker or emoji that expresses the sentiment.</p>	
<p><i>In Shelly we Trust</i></p>	<p>A relatively new phrase used by members of the TinyKittens online community to imply that they trust whatever decisions Shelly makes for the cats and kittens in her care. It is often also used when one community member is trying to put a stop to criticism from one or more other community members.</p> <p>I assume this was based on the phrase <i>In god we trust</i>, but I have no way to confirm that. If this is true, it does provide some interesting insight into how some community members view Shelly. She is more than just some woman on the internet. To some members, what she says and does is gospel.</p>	

Folk Term	Definition	Example(s)
	<p>Examples provide slightly different variations on the phrase.</p>	 <p>TinyKittens Unite July 14, 2018 · 📍</p> <p>Princess Consuela is still pushing but she's getting tired and not making as much progress as hoped. Shelly is doing what is best for her and taking her the emergency vet.</p> <p>Now we wait patiently and send positive energy and trust in Shelly. ❤️</p> <p>As we've had another successful sale on the TKU Market today and several over the past month, I will be sending Shelly \$3000 right now to help out. Thank you to all our members who have donated to help this happen. ❤️</p> <p>Thank you [redacted] for your screenshot.</p> <p>349 others 77 Comments</p>
<p><i>The NANO Effect</i></p>	<p>A phrase created by a community member to mean two things. One, Nano is in reference to the kitten who passed away a couple of years ago due to unrepairable genetic issues. While he was on TinyKittens for that short time, he provided a lot of joy to a lot of community members. And he is credited with saving his whole family at the farm property where he was found. And two, NANO stands for Not Another Night Outside, in reference to cats who are rescued by TinyKittens. Together, the two meanings of the phrase allow it to be used in reference to any event where a kitten or cat is saved from life outside.</p>	 <p>Tinykittens January 28, 2018 · 🌐</p> <p>BREAKING MEWS! This video will make. your. day.</p> <p>Three Amigos - Elliott, Pele & Birch ❤️ ❤️ ❤️</p> <p>#perchiott #TheNanoEffect</p> <p>Volunteers evacuated two colonies of terrified feral cats and kittens.</p> <p>3.8K 400 Comments 460 Shares 77K Views</p>


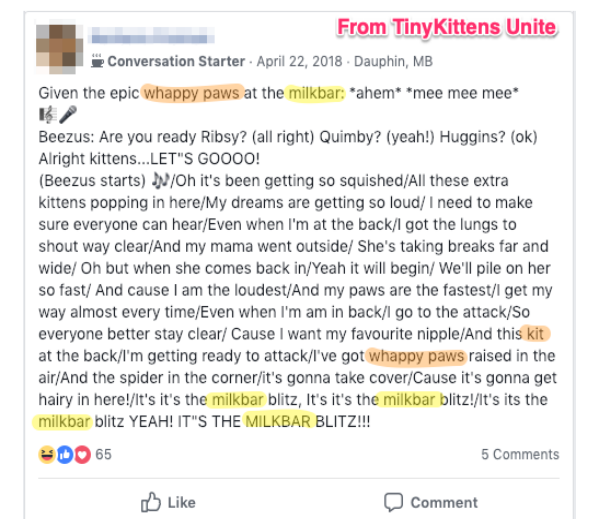
5.3.5.5 Items

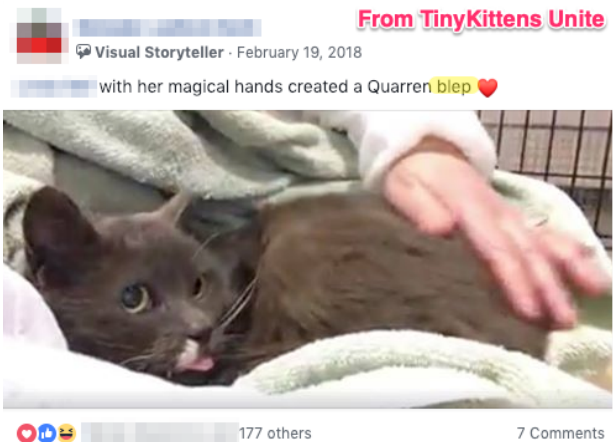

Folk terms for items are essentially replacement nouns to describe a person, place, or thing. During my search of the full data set, I found over 30 different folk terms used for items. A list of some of those item folk terms can be found in Table 18, along with their definitions and an example.


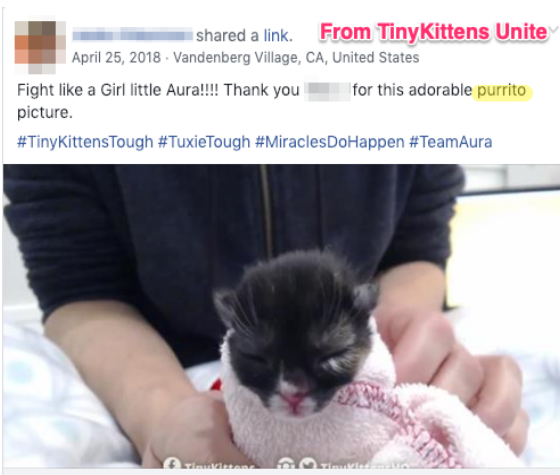
Table 18

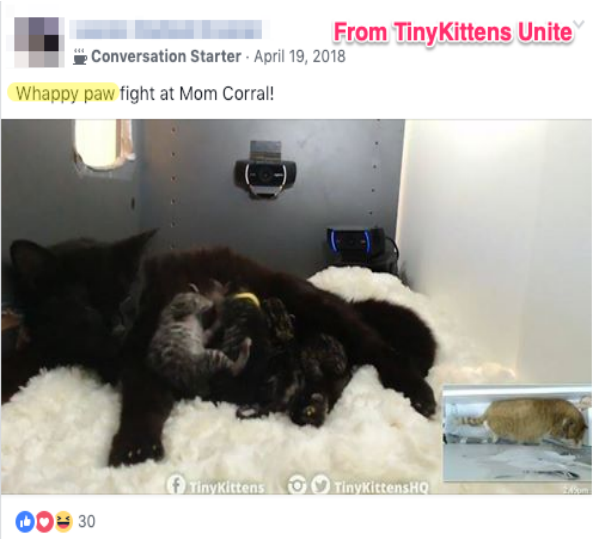
Examples of Folk Terms for Items Found in the TinyKittens Online Community



Folk Term	Definition	Example(s)
Fierce	Refers to a kitten’s failed attempt to be scary or intimidating. (Kittens are just not scary or intimidating!)	

Folk Term	Definition	Example(s)
<p>Crab Puffs</p>	<p>Refers to when a kitten arches their back, stands on their tippy toes, puffs out of the fur on their back, and jumps sideways. This is a movement done instinctively by kittens to make them look intimidating. In reality, it only makes them look cuter.</p>	
<p>Milkbar</p>	<p>Refers to a momma cat's nipples or teats, of which she normally has eight. Community members often refer to each nipple as having a different flavour.</p>	

Folk Term	Definition	Example(s)
Blep	Refers to a cat or a kitten who has a small piece of their tongue sticking out of their mouth, like they forgot they had a tongue.	
Toe Beans	Refers to the soft pads on all four paws of a cat or kitten. Often those toe beans are interesting colours. Humans have a weird need to see toe beans from below.	

Folk Term	Definition	Example(s)
<p>Baff</p>	<p>Refers to a momma cat cleaning her kitten with her tongue. This normally occurs at the exact moment that the kitten does not wish to be cleaned and they express their woe.</p>	 <p>From Tiny Kittens Unite ✓ Visual Storyteller · July 10, 2018 Had my fudzy, no baff required. Yippee</p> <p>3:26pm · Tiny Kittens · Tiny Kittens HQ 392 others · 12 Comments</p>
<p>Purrito</p>	<p>Refers to the way in which a cat or kitten can be wrapped in a blanket or towel in order to prevent them from using their paws. Often used on kittens to prevent whappy paws.</p>	 <p>shared a link. From Tiny Kittens Unite ✓ April 25, 2018 · Vandenberg Village, CA, United States Fight like a Girl little Aura!!!! Thank you for this adorable purrito picture. #TinyKittensTough #TuxieTough #MiraclesDoHappen #TeamAura</p> <p>JIGSAWPLANET.COM Aura purrito - jigsaw puzzle (72 pieces) Free online jigsaw puzzle game</p> <p>139 · 6 Comments</p>

Folk Term	Definition	Example(s)
<p>Whappy Paws</p>	<p>Refers to the way in which very young kittens used their paws to hit their siblings so they can get their preferred nipple. <i>Whappy paws</i> is usually accompanied by loud woe.</p>	 <p>The image is a screenshot of a social media post. At the top, it says 'From TinyKittens Unite' in red. Below that, it says 'Conversation Starter · April 19, 2018'. The main text of the post is 'Whappy paw fight at Mom Corral!' in yellow. The central image shows a black kitten lying on a white, fluffy blanket. The kitten's paws are visible, and it appears to be in a state of distress or aggression. At the bottom of the image, there are social media icons for Facebook and Twitter, both labeled 'TinyKittens' and 'TinyKittensHQ'. Below the image, there are icons for like, love, and a speech bubble, followed by the number '30'.</p>



Folk Term	Definition	Example(s)
Zoomies	Refers to any time one or more kittens (and occasionally cats) have a sudden need to run around at high speeds for apparently no reason. For kittens, it is often followed by nap time.	<p>  Visual Storyteller · June 13, 2018 From TinyKittens Unite </p> <p> Tk news update: We have ongoing zoomies, escapes (with outside help), tall wall jumping to the inside, mass chaos! It is alleged. That one grandpaw Mason was seen at the top of the wall trying to teach the kittens to jump from the big wall. Reports in that Cheddar Cheese was the first to jump in followed by Nakia, Huggins, Brie, Fontina, then Risby. WitnessEs reported seeing Colby, Aura, and Beesus at the top of the wall but they decided to return through the escape hatch (not down the hatch) there was a tabby camera change at 254(keyboard typing class) and slight change at 301 by Brex and fontina. All for now now back to zoomies! Unless they've fallen asleep. </p> <div>  </div> <p> 👍❤️👏 157 1 Comment </p>

5.3.5.6 *Tiny Terms*

Tiny terms are completely unique to the TinyKittens online community, as they are a play on the naming convention Shelly used for most of her Facebook pages. A list of some of those *tiny* folk terms can be found in Table 19, along with their definitions and an example.

Table 19

Examples of *Tiny* Folk Terms Found in the TinyKittens Online Community

Folk Term	Definition	Example(s)
TinySuitcases	An event that occurs the day each cat or kitten is picked up by their new forever family. The event consists of each cat or kitten having a small suitcase (and other bags, because the suitcases are never big enough) filled with toys, blankets, and other memorabilia from their time at TinyKittens. These events almost always occur on the live video stream, but not all forever families participate in person.	 

Folk Term	Definition	Example(s)
TinyCamper Tiny Toona Taco Truck	Refers to a small plastic camper/trailer that is setup for the kittens when their nest is expanded, once they become old enough to start to move around and play. Community members joke about it being a food truck because of the large window in the side.	
TinyVillage TinyVillagers	Refers to the TinyKittens community as a whole. The term <i>TinyVillagers</i> is also used to refer to the members of the <i>TinyVillage</i> .	

Folk Term	Definition	Example(s)
<p>TinySofa</p>	<p>Refers to Grandpa Mason’s small, dog-sized sofa in his part of the house. He often lies on it for naps and cuddles with the kittens.</p>	 <p>A screenshot of a Facebook post from the page "Grandpa Mason and his kittens" dated February 24, 2018. The post text reads: "Grandpa Mason is testing out new toys from the comfort of his #TinySofa while he waits for his next batch of kittens to love. See him in action right meow, LIVE: TinyKittens.com/live 😊 We have a few leads on some kittens, so keep your paws crossed! ❤️". The image shows a brown dog sitting on a small, blue, dog-sized sofa in front of a stone fireplace. An orange toy is on the floor in front of the sofa. The post has 3.2K likes, 200 comments, 131 shares, and 16K views.</p>
<p>TinyTesticles</p>	<p>Used exclusively on TinyTapeworms to refer to kitten testicles. Reference to the testicles is usually accompanied with some sort of statement that they will never be used.</p>	 <p>A screenshot of a Facebook post from the page "TinyTapeworms" dated June 22, 2018. The post text reads: "More #TinyTesticles that will never be used. ❤️". The image shows two pairs of red, plastic-wrapped kitten testicles on a white paper towel. One pair is labeled "Cheddar" and the other is labeled "Colby" in blue ink. At the bottom of the image, there is text that reads "WN after steam sterilization" and "Changes GOLD/BROWN". The post has 1K likes, 97 comments, and 7 shares.</p>

5.3.5.7 Hashtags

It is not unusual for TinyKittens online community members to add a hashtag before one of the above listed folk terms. In Facebook, words that start with a hashtag can be clicked on, which runs a search within Facebook for all references to that hashtag + word.

5.3.5.8 Frequency of Folk Terms

Dozens of folk terms are used by the members of the TinyKittens online community on a daily basis. However, depending on the specific events occurring at TinyKittens at any given time, the folk terms used may increase or decrease in frequency. For example, when there are pregnant momma cats on the live video stream, folk terms associated with pregnant cats (e.g., belleh vision, catermelon, etc.) are used more frequently. Figure 60 lists the most frequently used folks terms during the study period.

Words	Posts	Comments	TKU	Total
Names				
Puffs	8	532	1	541
Grandpaw	0	317	0	317
Ginger(s)	6	297	9	312
Tuxies	4	180	0	184
Tortie(s)	4	166	6	176
Forever Home	1	141	2	144
Happy Forest	13	108	12	133
Tabby(s)	7	119	2	128
Dr. F or Dr F	8	119	1	128
Snuggler(s)	3	110	6	119
Pants	0	112	2	114
Panther	4	95	7	106
Meowmy or Meowy	0	100	6	106
Furbaby or Furbabies	0	89	7	96
Auradorable	9	80	0	89
Calico(s)	0	78	9	87
Cass	0	83	0	83
Puff Puffs	0	83	0	83
Village	0	58	19	77
Catermelon(s)	8	68	0	76
Kittteh(s)	0	55	2	57
Miracle Kitten	0	55	1	56
Mods	4	51	0	55
Tabbie(s)	2	47	2	51
Former Feral(s)	3	45	1	49
#MiracleKitten	16	28	0	44
Trojan	1	28	0	29
Chatters	1	26	1	28
Ratty or Ratties	2	24	1	27
Panthers	0	26	0	26
House cat	1	19	3	23
Cuddler(s)	0	20	2	22
Twingers	2	18	0	20
Chlomona	4	12	1	17
FDJ	1	6	9	16
Forever Family	6	8	0	14
Cassaroll or Cassarole	0	12	0	12
Baby Daddy or Baby Daddies	0	11	1	12
Bottle babies	3	7	0	10
Auracuda	5	1	2	8
House Panther	1	4	0	5

Words	Posts	Comments	TKU	Total
Places				
TKHQ or HQ	10	136	8	154
Rainbow Bridge or Bridge	0	91	15	106
Wedge	1	53	0	54
Sink	2	35	0	37
Caternity Ward	5	8	0	13
Events				
Snuggle(s)	14	334	5	353
Kitten Season	6	110	0	116
Making Biscuits	1	51	0	52
Field Trips	1	11	0	12
Kitten Watch or #KittenWatch	3	9	0	12
Phrases				
"Power of the Paw" or "PoTP"	0	73	121	194
"Make good choices" or "making good choices"	6	123	1	130
"Paws crossed"	3	41	10	54
"Thank Meow" or "Thank Mew"	8	38	6	52
Stealth	1	17	0	18
"I'm not crying, you're crying!"	0	15	0	15
Items				
Kibble	15	279	8	302
Fierce	1	200	2	203
Meds	16	88	31	135
Crab puffs	1	103	0	104
Scamp or Scampy or Scamper	2	94	0	96
Milkbar	9	70	1	80
Blep or blepiest	0	79	0	79
Cam	6	56	5	67
Purrfect	5	57	4	66
Belleh	0	42	5	47
Squee or Squeee	0	44	1	45
Toe Beans or Toebeans	0	39	1	40
Baff or Baffing	1	38	0	39
Kitten pile	1	38	0	39
Tortitude	0	34	3	37
Purrito	1	32	0	33
Floofy	5	26	0	31
Itty bitty	0	30	0	30
Pudge or Pudgy	5	22	0	27
Elevator Bum or Elevator Butt	1	19	2	22
Starfish	0	21	0	21
Frisky or Friskie	1	19	0	20
Whappy or Whappers or Whapped	3	17	0	20
Zoomies	0	17	2	19

Figure 60: A list of the most frequently used folk terms in the TinyKittens online community for the study period of January to June 2018, based on a search of the full data set.

The top five more frequently used folk terms are *Puffs*, *GrandPaw*, *Ginger(s)*, *Kibble*, and *Fierce*. The most frequently used folk term in Shelly's posts was a tie between *#MiracleKitten* and *Meds*. The most frequently used folk term in the comments to Shelly's posts was *Puffs*. And the most frequently used folk term on TinyKittens Unite was *Power of the Paw* or *POTP*.

5.3.5.9 Information Exchanged

The folk terms used by members of the TinyKittens online community show that when information is exchanged, it is often exchanged using a language unique to this community.

5.3.5.10 Evidence for the Community-Based (Virtual) Human-Animal Bond

The folk terms, as part of a larger vocabulary, are used exclusively by members of the TinyKittens online community. They were not created on purpose, but rather developed over a period of time as community members interacted. Some were created by accident when Shelly said something on the live video stream that stuck, while others were brought into the community from outside. In general, the fact that the community has its own language implies not only that they think like a community, but they are trying to create an identity for their community that is separate from all others.

Like all themes found in the analysis, the folk terms are almost all cat-related. And like the Descriptive Codes, this further indicates that community members are passionate about one very specific thing—cats. They appear to get pleasure and comfort out of creating a unique vocabulary, which they use to describe the cats and kittens with which they have bonded.

5.4 The Bottom Line: Thematic Review

An analysis for this study would not be complete without taking a look at the bottom line. Do the findings, at all levels, tell the same story? Are there one or more themes that flow consistently through the coded data? Do the findings of one code group match the findings of other code groups? Does the combination of findings from more than one code group provide the same conclusion as the individual code groups? If the answer is

no to any of these questions, why? Are we asking the wrong questions? Is the data flawed? Have we developed the wrong codes? Or, if the answer is yes to any of the questions, what is that story or theme? What does that story or theme tell us about the TinyKittens online community? And most importantly, does that story or theme help us answer the research questions?

5.4.1 The Findings Tell the Same Story

Section 5.2 looked at the big picture and concluded that the Like and Love reactions account for 93% of all reactions to Shelly's posts. Sad reactions account for 2% of all reactions and Angry reactions account for 0.006% of all reactions. This conclusion aligns with the findings in Section 5.3 which shows that positive emotions account for 87% of all Emotion Codes used and negative emotions account for only 13%. These findings indicate that, in general, TinyKittens online community members are happy about the posts and comments made, not sad or angry.

Section 5.3.1 concluded that the Process Codes indicated that community members often exchange information about things they have observed or watched. This conclusion aligns with Section 5.3.3 which concluded that observations were the second most frequently used Descriptive Code for comments to Shelly's posts and the fourth most frequently used Descriptive Code for comments to TinyKittens Unite posts. In addition, the Descriptive Code conclusion regarding observations also aligns with Section 5.3.2 which concluded that the *Admiration* emotion is the third most frequently used Emotion Code. Together, these conclusions indicate that TinyKittens online community members often exchange information about the things they observe, which are also the things they admire.

Section 5.3.1 also concluded that community members often exchange information about the cats or kittens they have adopted, rescued, or fostered. Information about cats or kittens in this context would be considered personal information, which aligns with the conclusions from Section 5.3.3, which states that *Personal Story* is the most frequently used Descriptive Code in posts on TinyKittens Unite and the second most frequently used Descriptive Code in comments on TinyKittens Unite. These conclusions indicate that personal information is often exchanged on the TinyKittens online community, but the majority of that information pertains to cats or kittens.

Section 5.3.1 also concluded that community members often exchange information regarding the ways in which TinyKittens provides them with stress relief and relaxation. This aligns with Section 5.3.2, which states that *Happy* is the most frequently used Emotion Code from the sample data set (and the second most frequently found emotion in the full data set). It also aligns with the fact that positive emotions outweigh negative emotions 7:1. These conclusions indicate that the vast majority of community members are happy with the time they spend in the community and that the time often allows them to relieve stress and relax.

Section 5.3.3 concluded that the *Supportive* code was the most frequently used Descriptive Code in all comments. And, *Power of the Paw* is the third most frequently used Descriptive Code in comments on TinyKittens Unite. Together, these conclusions indicate that the vast majority of comments made by TinyKittens community members are positive and supportive in nature. It further seems to indicate that community members care about each other (and each other's cats and kittens) and want to help out in any way they can, even if it is just verbal (or visual) encouragement. This is further backed up by the fact that some of the negative Emotion Codes, such as *Anxious*, may represent a negative emotion, but in truth indicate concern on the part of one community member towards another (or towards a cat or kitten). Even the specific posts and comments coded with a negative Emotion Code like *Sad* and *Angry* are not normally emotions directed towards a community member, but rather towards an outsider who has done something the community considered unacceptable (e.g., abused a cat).

Section 5.3.4 provided four basic themes that resulted from the statements with Values Codes. Shelly appears to use her position of authority to help support community members by encouraging them to keep going or that they can be proud of whatever they are able to accomplish. Having said that, the majority of statements with a Values Code are about cats and kittens, which seems to indicate that the most important values, attitudes, and beliefs shared amongst community members relate to the bond they have (or feel) with cats and kittens (their own and those on TinyKittens).

In conclusion, the same story about the TinyKittens online community is told at all levels and sections of the analysis. The stories and themes are consistent

throughout all results and conclusions. And those conclusions provide evidence in support of both research questions posed in this study.

5.4.2 Overall Themes

The findings of the coding and thematic analysis provide the following overall themes:

1. TinyKittens online community members are typically happy, supportive individuals.
2. TinyKittens online community members regularly share personal information.
3. TinyKittens online community members endeavour to help other community members.
4. TinyKittens online community members find happiness and relaxation within the community, from both cats and kittens, and other humans.
5. TinyKittens online community members care deeply about the well-being of cats and kittens in general, and develop a bond with all the cats and kittens in the care of TinyKittens.

5.5 Chapter Conclusion

The purpose of this chapter was to review the findings from the coding and thematic analysis of the study data. These findings were first viewed from an overall, high-level position or big picture, then from a more detailed, intermediate-level position or deep dive, and finally from a thematic, low-level position or the bottom line.

The amount of data analyzed should provide comfort that the bottom line themes represent a consistent and normative view of the TinyKittens online community and its members, as well as the information exchanged, the activities discussed, and the emotions expressed. How these consistent and normative themes related to the theoretical framework and answer the research questions will be explored next.

CHAPTER 6 DISCUSSION

“I have studied many philosophers and many cats. The wisdom of cats is infinitely superior.”

Hippolyte Taine

6.1 Chapter Overview

In the Results chapter, I was able to develop the following five themes from an analysis of the data:

1. TinyKittens online community members are typically happy, supportive individuals.
2. TinyKittens online community members regularly share personal information.
3. TinyKittens online community members endeavour to help other community members.
4. TinyKittens online community members find happiness and relaxation within the community, from both cats and kittens, and other humans.
5. TinyKittens online community members care deeply about the well-being of cats and kittens in general, and develop a bond with all the cats and kittens in the care of TinyKittens.

The Results chapter also discussed *how* the data identified these themes and concluded that these themes are consistent amongst all parts of the analysis.

It is the purpose of this chapter to look at these themes, as well as other data, and provide two things: one, an explanation of *how* the data provides evidence for the theoretical framework, and two, answers to the two research questions.

This chapter will provide evidence to show that the TinyKittens online community is both a virtual community and an information world. It will also provide evidence that, based partly on the information exchanged within the community, the TinyKittens online community not only experiences the human-animal bond virtually, but also as a community.

6.2 TinyKittens & Normative Behaviour

The theory of normative behaviour is one of the main theories on which the theory of information worlds is based. Many of the aspects of the theory of normative behaviour have been carried into the theory of information worlds. As such, this section will

provide evidence that the TinyKittens online community can be explained by the theory of normative behaviour, which in turn implies that the TinyKittens online community is a good candidate for an information world.

6.2.1 TinyKittens as a Small World

A small world has been defined by a number of researchers, including Chatman, Burnett, and Jaeger. In general, a small world is a place where the following exists,

1. Members are like-minded individuals.
2. Members share common interests, expectations, and behaviours.
3. Members share the same opinions and concerns.
4. Members have their own language and customs.
5. Members know who is important and trustworthy, and who is not.
6. Members share cultural and intellectual space.
7. Activities and events tend to be routine and predictable.
8. Can exist at all levels of society and culture. (Chatman, 1999, 2000; Burnett, Besant, & Chatman, 2001; Huotari & Chatman, 2001; Jaeger & Burnett, 2005; Burnett & Jaeger, 2008, 2010; Burnett, Jaeger, & Thompson, 2008)

The best summary definition of a small world I was able to find is from Jaeger and Burnett in their 2010 book titled *Information Worlds*:

At the micro level, each small world is a social group with its own social norms, social types, acceptable forms of information behaviour, and shared perceptions of information value. Within a given small world, members develop normative ways in which information is accessed, understood, and exchanged both within the small world and with others outside that world. (p. 8)

Based on the analysis of the TinyKittens online community, I believe the community falls under these definitions quite well. Members of the TinyKittens online community are like-minded individuals who share a common interest (cats), expectations (e.g., live videos of cats and kittens), and behaviours (e.g., asking each other for help). And, many TinyKittens community members share the same basic opinions and concerns (e.g., spay and neuter your pets, trap-neuter-return is a worthwhile endeavour). The TinyKittens online community has its own language

(e.g., power of the paw, Puff Puffs and Mini Puffs) and many of their own customs (e.g., tiny suitcases). TinyKittens members know that Shelly is someone who is not only important, but trustworthy (e.g., *in Shelly we trust*) and they know which outside groups are perceived as not important or trustworthy (e.g. humans who abuse cats). TinyKittens community members share a virtual cultural and intellectual space where they feel comfortable talking about cat-related topics and supporting each other. Many events in the TinyKittens online community are routine and predictable (e.g., live video streams, live births, Grandpa Mason). And even the unpredictable events (e.g., *something floofy this way comes*) unfold in predictable ways (e.g., live intake).

All of the above noted examples indicate that members of the TinyKittens online community share social norms, social types, a worldview, and information behaviours. These examples also show how members have developed normative behaviours that depict how they access, understand, and exchange information.

6.2.2 Social Norms at TinyKittens

Social norms are standards that help guide members as to what is and is not acceptable behaviour (Chatman, 2000; Burnett, Besant, & Chatman, 2001; Burnett & Bonnici, 2003; Burnett & Jaeger, 2008). Social norms can also influence the “attitudes, interests, and language of participants” (Burnett, Besant, & Chatman, 2001, p. 542). Social norms help develop a “sense of balance” (Burnett & Bonnici, 2003, p. 334) within the small world and usually evolve from the small world’s “activities, motives, and goals” (Burnett & Bonnici, 2003, p. 334). Social norms can also determine how and when members can step outside the boundaries of their small world or community (Burnett & Jaeger, 2008). Social norms can be explicit or implicit (Burnett & Bonnici, 2003), where explicit norms are formal norms typically written down and shown to new members (Burnett & Bonnici, 2003) and implicit norms are informal norms that are usually known to existing members and are shared with new members (Burnett & Bonnici, 2003).

One of the most prevalent examples of social norms within the TinyKittens online community are the written rules provided on the TinyKittens Unite Facebook page and the TinyKittens live video streams on YouTube. Another example of explicit social norms is the vocabulary document provided on the TinyKittens Unite

Facebook page (see Appendix B), which new members are directed to when they do not understand terms being used by existing members. The TinyKittens online community also has many informal or implicit social norms. An example of an implicit social norm from the YouTube chat is in Figure 61.

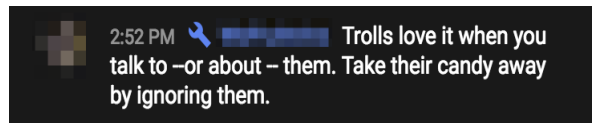


Figure 61: Screenshot from June 15, 2018 showing a mod *implying* that if chatters do not respond too trolls, they will stop.

6.2.3 Social Types at TinyKittens

Social types are the various different definitions, identities, or roles given to members of a specific small world or community (Chatman, 2000; Burnett, Besant, & Chatman, 2001; Burnett & Jaeger, 2008; Jaeger & Burnett, 2010). These social types can be formal (e.g., Facebook page administrator) or informal (e.g., lurkers). Social types determine the level of trustworthiness and importance of specific community members, where those with more significant social types are more trustworthy than those who are less significant (Burnett, Besant, & Chatman, 2001; Burnett, Jaeger, & Thompson, 2008).

The TinyKittens online community has a number of formal social types, who have very specific, officially assigned roles. For example, Shelly is the owner and administrator of all the official TinyKittens Facebook pages; there are specific community members who are administrators of the TinyKittens Unite Facebook page; and there are specific community members who are moderators of the YouTube live video stream chat. There are also a number of informal social types, which can be categorized based on their behaviour. For example, lurkers, who are TinyKittens community members who read the posts and chat, and watch the live video stream, but do not comment or chat themselves (Burnett, 2000; Burnett, Besant, & Chatman, 2001; Burnett & Buerkle, 2006); newbies, who are new to the TinyKittens community and may not yet know all the social norms (Burnett, Besant, & Chatman, 2001); insiders²⁵, who are TinyKittens community members and outsiders, who are not (Burnett, Besant, & Chatman, 2001); and trolls, social media users who cause trouble, usually in the YouTube chat (Burnett, 2000).

25. For the purpose of this study, an insider is someone who is a TinyKittens online community member and an outsider is someone who is not. What constitutes membership and whether there are different types of insiders and outsiders was considered out-of-scope for the purpose of this study, but are very interesting questions with, I suspect, complex answers.

TinyKittens online community members who have formal and official social types, such as account owners, administrators, and moderators, tend to be trusted more than other members, because they have a position of authority. For example, if a YouTube chat moderator provides an update about TinyKittens, they are more likely to be believed than a chatter who posts the same update. Because of their position of authority, it is believed that these moderators must have some sort of extra knowledge about TinyKittens and that the information they are sharing is not simply a rumour. (Ironically, there is no formal rule or process that indicates moderators know more than anyone else. This belief might be considered an implicit social norm.)

6.2.4 Worldview at TinyKittens

A worldview is the way in which members of a small world look at the world-at-large (Chatman, 2000; Burnett, Besant, & Chatman, 2001; Burnett & Bonnici, 2003; Burnett & Jaeger, 2008; Burnett, 2009). A worldview is the “scope of a small world” (Burnett, 2009, p. 696), the “generally accepted and agreed-upon *context of shared interest*” (Burnett, Besant, & Chatman, 2001, p. 543), “belief structures” (Burnett & Jaeger, 2008, n.p.), and the “collective perception (or approach)...[of] which [things] are important [and which] things [are] trivial or unimportant” (Chatman, 2000, p. 11). A worldview includes “language, values, meaning, symbols, and context” (Chatman, 2000, p. 9) and provides a small world or community members with both a “sense of belonging” (Chatman, 2000, p. 11) and “a scale of relative values” (Burnett & Jaeger, 2008, n.p.).

The TinyKittens online community, in combination with its social norms, holds a specific worldview. The TinyKittens worldview may not be as formal and explicit as the social norms and social types already explained, but it does exist. One example of the worldview held by TinyKittens is the belief that all cats and kittens are important, deserve love, and should be treated with respect. This specific worldview allows TinyKittens community members to look at other small worlds that care about cats and kittens in a positive light, and to look at small worlds who do not care about animals in a negative light. Another example of the worldview at TinyKittens is the belief that trap-neuter-return is a program that works and is the most respectful way to manage feral cat colonies. Finally, another worldview at TinyKittens is their belief

that anyone, regardless of social, financial, or medical situation, can have a positive impact on cats and kittens by doing something as simple as sharing posts and videos of TinyKittens. It is also interesting to point out that while the general worldview of TinyKittens is that cats are the best, they do not believe that other pets are unimportant. TinyKittens members are more than happy to share posts, photos, and videos of other animals, including dogs.

Another way to look at worldview is the way in which that view has an impact on things outside the TinyKittens online community. As mentioned, individuals who are members of the TinyKittens online community are also members of multiple other worlds of different sizes. And each of those worlds will have its own worldview. An individual may find that one world's worldview matches with another world's, but they may find other worldviews that conflict or contradict each other. For example, an individual, by virtue of being a member of the TinyKittens online community, has a worldview that TNR programs work and are the best way to reduce feral cat populations. That same individual may also be a member of a city which opts to use euthanasia as their means of feral cat population control. This individual belongs to two different worlds who have conflicting worldviews—what do they do? I suppose one very easy way to handle such a situation is to ignore it, but these conflicting worldviews might also spur that individual into action. If they personally prefer the TNR option, they may petition their city government or humane society to switch programs, which, if successful, may change the worldview of their city. Or, if they personally prefer euthanasia, they may choose to educate TinyKittens online community members about the benefits of such a program.²⁶

6.2.5 Information Behaviour at TinyKittens

In the Literature Review chapter, several complementary definitions of information behaviour were provided. Two of these definitions note that information behaviour includes needing information, seeking information, managing information, giving or providing information, evaluating information, and/or using information (Fisher, Erdelez, & McKechnie, 2005; Ford, 2015). The results of the analysis indicate that the TinyKittens online community does have specific information behaviours. The

26. As an aside, research has shown that neither method is better than the other. Both, in fact, do not work well. Many communities prefer TNR because it has better PR value.

Descriptive Codes I used in the analysis (of which there were 52) found over 5,000 examples of TinyKittens online community members exchanging information in one way or another. On TinyKittens Unite alone, there are over 3,000 examples of members asking questions; answering questions; sharing stories, photos, and videos; requesting help and support; and providing help and support.

6.2.6 TinyKittens and the Theory of Normative Behaviour

According to Chatman (2000), normative behaviour is “behaviour which is viewed by inhabitants of a social world [aka., small world] as most appropriate for that particular context...[it] provides a predictable, routine, and manageable approach to everyday reality” (p. 13). The theory of normative behaviour includes four social elements—social norms, social types, worldview, and information behaviour—which have been defined for the TinyKittens online community.

The theory of normative behaviour also has five propositions which describe the inner workings of a social world, small world, or community.

Proposition 1: Social norms are standards with which members of a social world comply in order to exhibit desirable expressions of public behaviour.

Proposition 2: Members choose compliance because it allows for a way by which to affirm what is normative for the context [of the social world] at this time.

Proposition 3: Worldview is shaped by the normative values that influence how members think about the ways of the world. It is a collective, taken-for-granted attitude that sensitizes members to be responsive to certain events and to ignore others.

Proposition 4: Everyday reality contains a belief that members of a social world do retain attention or interest sufficient enough to influence behaviour. The process of placing persons in ideal categories of lesser or greater quality can be thought of as social typification.

Proposition 5: Human information behaviour is a construct in which to approach everyday reality and its effect on actions to gain or avoid the possession of information. The choice to decide the appropriate course of action is driven by what members’

beliefs are necessary to support a normative way of life. (Chatman, 2000, p. 13-14)

Proposition 1 describes the social norms associated with a small world. I have already shown that the TinyKittens online community members have (implicit and explicit) social norms that tell them how to behave in ways that are acceptable to the community. The TinyKittens online community has both written, formal social norms and unwritten, informal social norms that are followed by community members.

Proposition 2 describes the reason why members of the TinyKittens online community chose to follow the social norms of the community, because it provides members with a means to validate their compliance and membership within the community.

Proposition 3 describes the social element of a worldview, which has already been outlined. The TinyKittens online community developed their worldview over a period of time based on the way in which members view the world outside the community, and have, over time, influenced other members in what to believe. Those beliefs provide TinyKittens community members with knowledge on how to react to certain events, such as: that when a troll is being rude in the YouTube chat, they do not have to justify that troll's need for attention by responding; and that when a cat or kitten passes away (either on TinyKittens or elsewhere) that only supportive condolences are accepted and second guessing the community member for why the cat or kitten passed away is not wanted. These responses are also dictated by the social norms at TinyKittens.

Proposition 4 describes the social types associated with a small world. Every member of the TinyKittens online community can be informally placed into at least one social type based on their behaviour, or lack thereof (e.g., newbie, veteran, mod, admin, etc.).

And finally, **Proposition 5** describes the information behaviours expected of members of small worlds. Like the worldview, the information behaviour of TinyKittens online community members was developed over time and is aligned with the social norms, social types, and worldview of the community. Like social norms, TinyKittens online community members who follow the preferred information behaviours show their allegiance to the community and its social norms.

All four social elements and all five propositions, taken together, demonstrate the normative behaviour expected and performed by the small world in question. The TinyKittens online community includes all four social elements and meets all five proposition, making it a small world with specific normative behaviours.

6.3 TinyKittens as an Information World

Jaeger and Burnett's (2010) theory of information worlds borrows extensively from Chatman's theory of normative behaviour. In the previous section, the four social elements and the five propositions of the theory of normative behaviour were explained and applied to the TinyKittens online community. From this application, it becomes clear that the theory of normative behaviour could be applied to the TinyKittens online community. However, while Burnett, Besant, and Chatman (2001) conducted a study demonstrating that the theory of normative behaviour could successfully be applied to virtual communities, technically Chatman's theory was not designed to look beyond an *individual* small world (Burnett & Jaeger, 2008; Jaeger & Burnett, 2010; Burnett, 2015). While studying the TinyKittens online community as an individual small world would not be incorrect, it would limit the extent of the study's findings. It also does not take into account that the TinyKittens online community is influenced by broader forces, some of which are not within its control.

The TinyKittens online community is influenced by other *small* worlds, such as: other cat-related communities, both on and offline; the personal small worlds of each member; and even the offline TinyKittens community. The TinyKittens online community, as a small world, is also influenced by *intermediate-sized* worlds like Facebook, YouTube, Livestream, Shelly's internet provider, the town of Langley, BC, the province of British Columbia, etc. There could even be *large* worlds that influence the TinyKittens online community, such as the internet as a whole. Finally, the TinyKittens online community, and all of its members, are influenced by the lifeworld, which is "the collective information and communication environment—the social tapestry—of a society" (Burnett & Jaeger, 2008, n.p.).

From a visual perspective, Figure 62 shows how some of these worlds fit together inside the lifeworld. In Figure 62, each box represents a social world. All of these social worlds are contained within the lifeworld, but each is also contained within other

worlds larger than itself. The social worlds in each box have their own way of doing things and their own way of viewing the worlds outside their own. Smaller social worlds within larger social worlds may share some of these social elements, but there is likely at least one small aspect that differs between each social world.

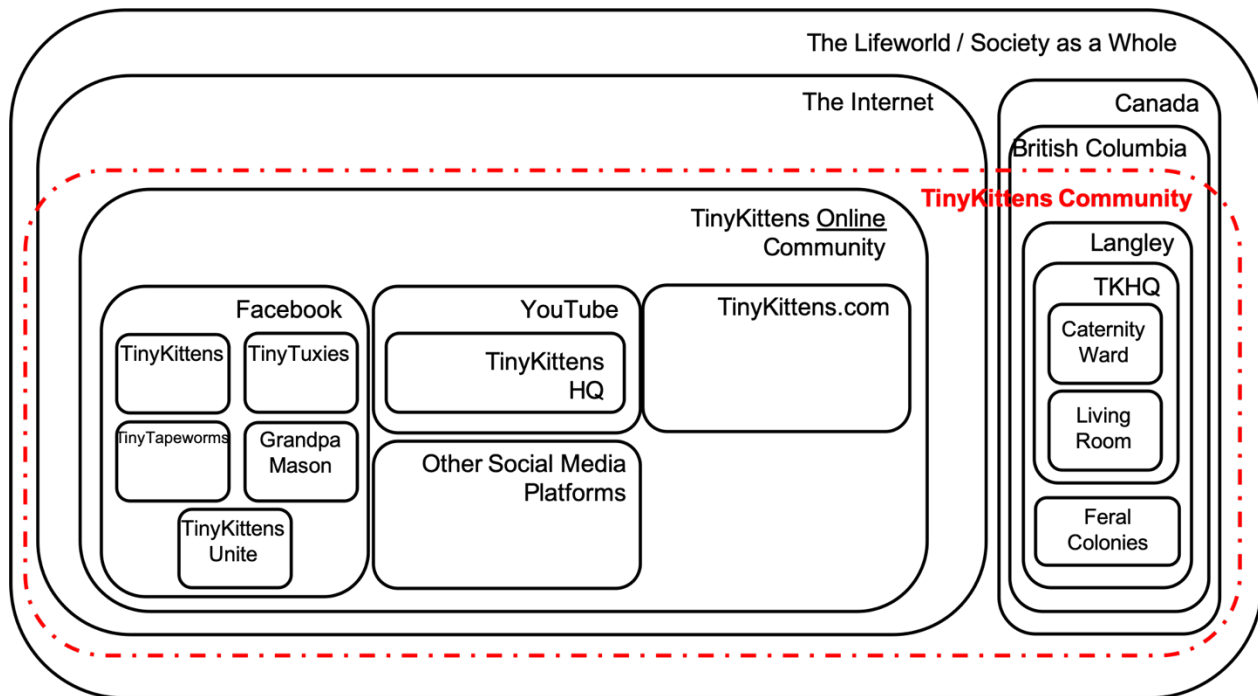


Figure 62: A visual representation of the various-sized worlds and their connection to/with each other and to/with the lifeworld as a whole. (Not all possible worlds are included.)

6.3.1 Chatman's Theory of Normative Behaviour Is Not Enough

Chatman's theory of normative behaviour, while very valuable, has some limitations. Chatman's theory of normative behaviour, and her other theories in general, concentrated on only one small world at a time and do not take into account the fact that each small world is influenced by other worlds (Burnett & Jaeger, 2008; Jaeger & Burnett, 2010; Burnett, 2015). In reality, "worlds are contiguous to as well as embedded and situated within other worlds" (Burnett, 2015, p. 9), hence Figure 62. This setback with the theory of normative behaviour is the reason why Jaeger and Burnett combined Chatman's ideas with those of Habermas to create their own theory.

Habermas, in contrast to Chatman, specifically focused on the larger world he referred to as the public sphere (Burnett & Jaeger, 2008; Jaeger & Burnett, 2010; Burnett, 2015). The public sphere is defined as "the space within a society, independent both of state power and of corporate influence, within which

information can freely flow and debate on matters of public, civic concern can openly proceed” (Burnett & Jaeger, 2008, n.p.). In other words, the public sphere is a requirement of any successful democracy and focuses on both what is good for society as well as for individuals (Burnett & Jaeger, 2008; Jaeger & Burnett, 2010; Burnett, 2015).

The theory of information worlds takes the theory of normative behaviour plus the theory of the public sphere and combines them to create a new theory that can be applied to any size world, as well as the interactions between those worlds. Neither Chatman’s nor Habermas’ theories provide a means to analyze the ways in which different worlds interact and communicate, or how one world can influence another (Burnett & Jaeger, 2008; Jaeger & Burnett, 2010; Burnett, 2015). The theory of information worlds was specifically designed to do just that.

The goal of the theory of information worlds is to enhance our understanding of the role of information in society by providing a means by which to analyze and understand the myriad interactions between information, information behaviour, and the many different social contexts within which they exist. The theory asserts that information behaviour is simultaneously shaped by immediate influences, such as friends, family, co-workers, and trusted information sources of the small worlds in which individuals live, as well as the larger social influences, including public sphere institutions, media, technology, and politics. (Jaeger & Burnett, 2010, pp. 7-8)

Even though the TinyKittens online community could be considered a small world, the members of that community come from multiple other small worlds (e.g., family, friends, work environments, cultures, nationalities, etc.) that influence how each individual views the information within the TinyKittens online community. The larger worlds that exist, both apart from TinyKittens and including TinyKittens, influences the information and information behaviour found within TinyKittens. As mentioned already, TinyKittens exists within the larger world of both Facebook and YouTube. Facebook’s and YouTube’s policies on what can and cannot happen on their platform directly influences the ways in which TinyKittens can communicate and interact on those platforms. The rules enforced by Facebook and YouTube can (and do) have a significant impact on the information shared via TinyKittens’

accounts, as well as the information behaviour of the members who interact on those platforms. Chatman's theory of normative behaviour does not take these types of influences and impacts into account, which can limit the way in which information behaviour, social norms, and social types are analyzed.

6.3.2 Additional Research Scope from the Theory of Information Worlds

The theory of information worlds uses parts Chatman's theory of normative behaviour and Habermas' theory of the public sphere, along with new ingredients, to provide a means to analyze not just individual worlds, but the interactions and influences between those worlds (Burnett & Jaeger, 2008; Jaeger & Burnett, 2010; Burnett, 2015). To do this, the theory of information worlds borrows the social elements of social norms, social types, and information behaviour from Chatman's theory (Burnett & Jaeger, 2008; Jaeger & Burnett, 2010; Burnett, 2015). It also takes Chatman's social element of worldview and re-defines it as information value (Burnett & Jaeger, 2008; Jaeger & Burnett, 2010; Burnett, 2015). Then, it takes a new social element, referred to as boundaries, in order to help explain the interaction between worlds (of all sizes) (Burnett & Jaeger, 2008; Jaeger & Burnett, 2010; Burnett, 2015).

As previously mentioned, social norms are "a world's shared sense of the appropriateness of social appearances and observable behaviours"; social types are "the roles that define actors and how they are perceived within a world"; and information behaviour is "the full range of behaviours and activities related to information available to members of a world" (Jaeger & Burnett, 2010, p. 8).

Chatman's idea of a worldview, while good, is limited in its scope. In Chatman's theory, worldview describes the way in which one particular small world understands the information they exchange based on their specific view of the world or society as a whole (Burnett & Jaeger, 2008; Jaeger & Burnett, 2010; Burnett, 2015). Burnett and Jaeger (2010) expanded that view and renamed it information value. In general, information value is "a world's shared sense of a scale of the importance of information" (p. 8), but it may be easier to think of information value as a range of ways in which a specific world views information and information behaviour based on a variety of items, such as: information content, perception, control, and information economies (Jaeger & Burnett, 2010). Together, an analysis of these four

pieces help a specific small world determine the importance, or value, of each piece of information.

Burnett and Jaeger's addition of boundaries is what helps explain the interaction between worlds. In general, boundaries are "the places at which information worlds come into contact with each other and across which communication and information can...take place" (Jaeger & Burnett, 2010, p. 8). All four of the other social elements of information worlds (social norms, social types, information behaviour, and information value) can change the way each world functions based on its boundaries with other information worlds. For example, all four social elements are specific to information world A. When a piece of information passes between information world A and information world B, via the boundaries between those worlds, the way in which that information is used, viewed, understood, and valued differs in A and B based on their social norms, social types, information behaviour, and information value (Burnett & Jaeger, 2008, Jaeger & Burnett, 2010; Burnett, 2015). This information world-specific analysis is what can also be viewed as the normative behaviour of each world. But these four social elements are not the only things that can impact or influence the information as it passes between worlds. Intermediate worlds and the lifeworld (in which all worlds reside) can also influence the way the information is used, viewed, understood, and valued (Burnett & Jaeger, 2008, Jaeger & Burnett, 2010; Burnett, 2015). Intermediate and large worlds such as "the media, the marketplace, or the government, can either promote the movement of information between small worlds or constrain such movement (Jaeger & Burnett, 2010, p. 9). For example, the way in which Facebook functions and the policies it has requires members of TinyKittens Unite to have a Facebook account. Facebook essentially hides all the information on TinyKittens Unite from anyone who is not both an account holder and a member.

The members of the TinyKittens online community are also members of other small and intermediate-sized worlds. They not only operate in each of those worlds, they may also provide a method by which information is passed between those worlds (through the boundaries). For example, a member of the TinyKittens online community might also be a member of their local rescue's small world. They may learn something interesting at their local rescue that they later pass onto the TinyKittens online community via Facebook or YouTube. This information may then

be used by other members of the TinyKittens online community (if it is determined to have value) or ignored (if it has no value). Even if the member finds value in a piece of information in their local rescue's small world, based on those social norms and information value, it is possible that the TinyKittens online community finds no value in the information, based on their social norms and information value. It is also possible that the value or importance of a piece of information is determined by the specific member (or social type) who is sharing the information. If Shelly were to share the information, based on her social type, it would almost certainly be considered valuable and important by all members of the TinyKittens online community.

The lifeworld in which all information worlds exists can also influence whether information found in the TinyKittens online community is determined to be important or valuable. For example, if a single member posts a Facebook message that a specific brand of cat food has been found to be dangerous, but has no source to back the fact up, the information may be ignored. But, if that same member were to post the same message with a link to a newspaper website or a manufacturer's website, where the information is clearly written, the information is not likely to be ignored. The member herself is not the determining factor, but rather, the organization within the public sphere that backs up the information is the determining factor.

6.3.3 TinyKittens as an Information World

The TinyKittens online community has all five social elements required of an information world based on the theory. On top of which, "virtual communities are almost textbook examples of small information worlds, each with its own distinct mix of socializing and information sharing, and each with its own set of social norms, social types, information value, and information behaviour" (Jaeger & Burnett, 2010, p. 93).

6.4 TinyKittens as a Virtual Community

Up until this point I have assumed that TinyKittens is, in fact, a virtual community. In the previous section, Jaeger and Burnett were quoted as saying that virtual communities

make textbook information worlds, and since TinyKittens is an information world, there is an excellent chance that TinyKittens is also a virtual community. In some very basic ways, it could even be argued that an information world and a virtual community are the same (or similar) thing.

However, in the Literature Review, very specific definitions of a virtual community were provided, which did differ from the definition of an information world. (If anything, the definition of a virtual community is less stringent than the definition of an information world.) This section will provide the evidence required to establish TinyKittens as a virtual community.

6.4.1 TinyKittens Meets the Definitions of a Virtual Community

The first definition of a virtual community is provided by Rheingold from his 1993 book. In summary, Rheingold states that a virtual community has these general properties: is a group of people, they may or may not meet face-to-face, they exchange words and ideas via the computer, they adhere to certain social contracts, they have shared interests, and they are geographically-focused with wider connections (Rheingold, 1993). TinyKittens is a group of people who meet both virtually and in-person (although, for the purpose of this thesis, only the virtual interactions are being analyzed). The virtual component of TinyKittens shares information via text, photos, videos, stickers, and emojis using the Facebook and YouTube platforms. TinyKittens, like all information worlds, has a specific set of social norms, which could also be considered a social contract. All members of TinyKittens are there because of their shared interest and concern for cats and kittens. And TinyKittens exists in real-life in Langley, BC, where the physical operations occur, but the virtual aspect of the community covers the entire world. Conclusion, TinyKittens meets Rheingold's definition of a virtual community.

The second definition provided was from Burnett, who created a virtual community typology in 2000. In general, his definition of a virtual community included the following properties: online participants with shared interests, geographical diversity, textual communications, socio-emotional support, and information exchange (Burnett, 2000; Jaeger & Burnett, 2010). The virtual part of TinyKittens is online participants who are from all around the world. Members of TinyKittens are there because of their shared interest in cats and kittens. The majority

of the communication between TinyKittens members is textual, although it also includes multi-media like photos and videos (maybe not a consideration in 2000). Members of TinyKittens, as found in the Results chapter, not only provide socio-emotional support, but also specifically and proactively ask for help when needed. And one of the major aspects of TinyKittens, especially on Facebook, is the exchange of information between members. Conclusion, TinyKittens meets Burnett's definition of a virtual community.

Burnett also provided descriptions of the types of activities that occur within a virtual community. Specifically, he mentioned that both interactive and non-interactive activities occur (Burnett, 2000). Non-interactive activities included lurkers, who are members who watch and listen but do not participate (Burnett, 2000). Technically, it is impossible (as someone without access to account-level stats) to determine if and how many lurkers might exist at TinyKittens. (For example, the owner of a YouTube channel can determine how many unique viewers watched a specific video and how many users chatted, which can help them determine how many people watched and did not participate. But non-owners are unable to view this information.) However, based on specific comments made by TinyKittens members on Facebook who have explicitly stated that they were lurkers up until that moment, I believe I can safely assume that TinyKittens includes a number of lurkers. Interactive activities include trolling, spamming, gossip, emotional support, play, announcements, and questions (Burnett, 2000). Again, based on the Results chapter, every one of these interactive activities occurs on TinyKittens.

The third definition, used by Daniel, provides a list of fundamental features he felt existed within all virtual communities, including: global membership, choice of anonymity, shared interests, continued interaction, social protocols, synchronous or asynchronous, shared meaning, voluntary, certain speed of relationships, courageous behaviour, lack visual cues, deep reflection, online and offline relationships, roles and responsibilities, and information exchange (Daniel, 2011). Many of these features also exist in Rheingold's and Burnett's definitions and have already been shown to be true of TinyKittens (non-binding, global membership; choice of anonymity; shared interests; continued interaction; social protocols; shared meaning; voluntary; roles and responsibilities; and information exchange). But TinyKittens meets the remainder of the features as well.

- TinyKittens can be synchronous (YouTube chat or Facebook live) and asynchronous (Facebook posts and comments).
- Due to the online and virtual nature of the TinyKittens community, some members do build relationships with each other faster than they would in real-life.
- Members say and do things on TinyKittens that they would not likely do in real-life, as the online environment makes them take more risks. (I believe this to be true about the internet in general.)
- In the case of members who do not appear on camera, there are no visual cues that would normally be associated with an in-person conversation.
- Because members can read a post or comment and are not required to respond immediately, the virtual part of TinyKittens allows members to reflect more deeply on what is being said and how they would like to respond (than they would be able to in a face-to-face conversation).
- Members of TinyKittens have the opportunity to meet offline, if they so choose.

Conclusion, TinyKittens also meets Daniel's definition of a virtual community.

The fourth and final definition of a virtual community provided in the Literature Review is one from Porter. In 2004, Porter published a typology of virtual communities, similar to Burnett's version in 2000, and includes the following criteria: aggregation of individuals, shared interests, fully or partially mediated by technology, and protocols or norms (Porter, 2004). At this point, I hope it is becoming clear that the multiple definitions of virtual communities, although they were developed over a period of 24 years, are becoming indistinguishable from each other. This is actually a good thing, as it shows that researchers have generally found the same features and characteristics of virtual communities regardless of which communities they study. And as with the previous three definitions, TinyKittens also meets Porter's definition of a virtual community. At this point, I believe it is safe to say that TinyKittens is, in fact, a virtual community.

6.4.2 It is Important that TinyKittens be a Virtual Community

“[A] virtual community is a cooperative, if inherently unstable, experiment in what it might be like to be a community in the absence of physical proximity” (Burnett, 2002, p. 157). It is “defined by its own particular history of writing and reading—a history documented by an ever-growing body of textual messages created by shifting populations of writers and interpreted by shifting populations of readers” (Burnett, 2002, p. 168). “Analysis of the differences in types of posts across virtual communities may give us a mechanism through which we can understand more clearly the role that information and information behaviour in particular plays in the social environments we call virtual communities (Burnett & Buerkle, 2006, n.p.). Which in turns means, “individual posts are logical units of analysis for an investigation into virtual communities” (Burnett & Buerkle, 2006, n.p.).

Pardon the multiple direct quotes, but they tell a story from researchers who have spent years studying virtual communities. A virtual community is, in some ways, like an experiment (Burnett, 2002). And the text exchanged in a virtual community is the data source (Burnett, 2002). By analyzing the individual posts (and comments) for what they say explicitly and implicitly, we can learn a lot about the purpose of a virtual community, the type of information it exchanges and why, and the information behaviour of its members (Burnett & Buerkle, 2006). If TinyKittens is a virtual community, an analysis of the posts and comments from TinyKittens members is a published and previously used method by which to study TinyKittens and answer the research questions. Because TinyKittens is also an information world, and virtual communities are textbook definitions of information worlds, the same posts and comments can be used to determine the social norms, social types, information value, information behaviour, and boundaries of the TinyKittens information world.

6.5 Research Question Answers

In this chapter, I argued that TinyKittens is not only a virtual community, but also an information world. Using the member-written posts and comments from TinyKittens, TinyTuxies, TinyTapeworms, Grandpa Mason, and TinyKittens Unite, I was able to develop an understanding of the social elements within the TinyKittens online

community. Now, I am ready to answer the research questions posed at the beginning of this thesis, which were:

1. What information is exchanged (sought and shared) among members of the TinyKittens online community?
2. How does the information exchanged by TinyKittens online community members provide evidence for the community-based (virtual) human-animal bond?

6.5.1 Research Question #1 What information is exchanged (sought and shared) among members of the TinyKittens online community?

In the overview of this chapter, I reiterated the five themes I developed from an analysis of the data, which were:

1. TinyKittens online community members are typically happy, supportive individuals.
2. TinyKittens online community members regularly share personal information.
3. TinyKittens online community members endeavour to help other community members.
4. TinyKittens online community members find happiness and relaxation within the community, from both cats and kittens, and other humans.
5. TinyKittens online community members care deeply about the well-being of cats and kittens in general, and develop a bond with all the cats and kittens in the care of TinyKittens.

These themes were developed in the Results chapter from the data collected and the analysis conducted. At the end of each sub-section in Section 5.3, I reviewed the data analysis conducted in that section and was able to draw conclusions regarding the information exchanged between community members. These conclusions provide the answer to research question #1.

6.5.1.1 Process Codes

Process Codes were used to capture discussions related to activities. These discussions were about an activity that a community member was currently participating in, or an activity they wanted to be able to participate in. The results of

the Process Code analysis provided the following conclusions regarding the information exchanged between members of the TinyKittens online community:

- Members share their observations with each other. These observations are typically related to the live video stream or a photo/video posted on one of the Facebook pages.
- Members share their experiences with adopting, rescuing, or fostering cats and kittens in their real lives. They share this information, not just to discuss their specific experiences, but also to discuss what they learned from those experiences.
- Members share their wishes. Specifically, they share what they *wish* they could do in terms of adopting, rescuing, or fostering a cat or kitten.
- Members share the ways in which TinyKittens provides them with stress relief and relaxation. This type of information was often shared through the gratitude they expressed towards TinyKittens for providing those opportunities to relax and relieve stress.

6.5.1.2 Emotion Codes

Emotion Codes were used to capture the expression of specific emotions by community members. These emotions were expressed explicitly (i.e., using specific words associated with an emotion) and implicitly (i.e., using emojis, stickers, GIFs, photos, etc.). The results of the Emotion Code analysis provided the following conclusions regarding the information exchanged between members of the TinyKittens online community:

- Members frequently share stories that are personal and have had some form of emotional impact on them. They often do this in order to help identify with other community members and to commiserate with a member who might be having issues.
- Members often anthropomorphize the cats and kittens at TinyKittens. They do this by creating commentaries of what the cats or kittens are saying or thinking. Some members even edit screen captures of the live video stream like a comic strip.

- Members continuously joke with each other, usually about the cats and kittens at TinyKittens.
- Members often provide words of encouragement to each other and the cats and kittens. They do this through gratitude, *power of the paw*, prayers, congratulations, good luck, get well, happy birthday, happy adoptiversary, etc.
- Members constantly show their concern and care for other community members and the cats and kittens at TinyKittens. In some cases, this is shown by offering condolences when another community member has experienced the loss of one of their cats or kittens.

6.5.1.3 Descriptive Codes

Descriptive Codes were used to capture the types of information exchanged between community members. And the context in which those codes were found often provided an understanding of *why* that type of information was being exchanged. The results of the Descriptive Code analysis provided the following conclusions regarding the information exchanged between members of the TinyKittens online community:

Shelly's Posts:

- Shelly frequently provides explanations or justification for the decisions she makes and the actions she takes.
- Shelly includes a TinyKittens URL in almost half of her posts and a photo or video in over three quarters of her posts.
- Many of Shelly's posts include humour and the majority of her posts were positive.
- None of Shelly's posts include any personal information about herself.
- Shelly frequently include advocacy messages (i.e., her worldview) in her posts.

Comments to Shelly's Posts:

- The most frequent type of comments Shelly receives are ones of support and encouragement.

- If a negative comment is posted in response to one of Shelly's posts, she rarely responds. (However, it was not uncommon for one or more community member to respond on her behalf and in her defense.)
- Many of the comments Shelly receives regarding her posts are observational in nature, in some cases, almost obvious (e.g., *kittens are so adorable*). (I occasionally got the sense that community members want to reply to one of Shelly's posts, but did not always know what to say. The results are a lot of comments without a lot of substance.)

Post on TinyKittens Unite:

- The majority of posts include personal information about the community member who wrote the post.
- Many posts include requests for information or questions. Community members appear to trust each other as being knowledgeable when it comes to the care of cats and kittens.
- When a community member includes information about an ongoing situation in their post, it is common to see that member provide updates to the community.

Comments on TinyKittens Unite:

- The majority of comments are positive and supportive, this includes comments that answer questions or provide advice.
- Many comments include personal information about the community member who wrote the comment. Sometimes as a means to show empathy, sometimes as a means to provide context.

6.5.1.4 Values Codes

Values Codes were used to capture the values, attitudes, and beliefs shared amongst community members. The analysis showed that the majority of value statements were expressed by Shelly. Although, several statements from other community members appear to indicate that the community, in general, holds the same values as Shelly. Values, attitudes, and beliefs on the TinyKittens online community could be equated to either a portion of the worldview or one aspect of the way in which they assess the value of information. The results of the Values Code analysis provided the

following conclusions regarding the information exchanged between members of the TinyKittens online community:

- Values, attitudes, and beliefs are mentioned regularly, but not frequently, during the study period. (I have noticed an increase in the number of posts and comments that include values, attitudes, and beliefs in 2019, often in association with a hashtag.)
- Values, attitudes, and beliefs relate mainly to cats and kittens, not humans.
- The main themes of the values, attitudes, and beliefs mentioned are, all cats are important, deserve respect and compassion; cat overpopulation is a problem and TNR is the solution; and spaying and neutering reduces cat overpopulation and suffering.

6.5.1.5 Language and Vocabulary

Only one code was used to highlight when a folk term was used within a post or comment in the TinyKittens online community. An analysis of the coded terms resulted in an extensive dictionary of terms indigenous to the TinyKittens online community. While not all of the folk terms were created by TinyKittens (e.g., blep or purrito), the TinyKittens online community has adopted all the terms as part of their social norms and information behaviour.

In general, I do not think that the folk terms used specifically identify the information being exchanged by community members. But they do provide insight into the *way* in which members exchange information. The fact that folk terms are used so often seems to indicate they are very popular amongst community members. I believe members use these folk terms as a way to connect with each other and validate their belonging in the community. Using one or more folk terms in a post or comment, in some ways, provides the author with more credibility, as they would only know some of the folk terms if they were a longer term member.

6.5.1.6 Summary of Answer to Research Question #1

In summary, a variety of information is exchanged within the TinyKittens online community on a daily basis. The vast majority of information exchanged is about cats or kittens, either those at TinyKittens or those in the personal lives of community

members. Posts from Shelly differ quite a bit from the posts found on TinyKittens Unite, but the comments on all Facebook pages share many similarities. Community members frequently share personal information with each other, for many reasons. And, community members regularly support and help other members, especially when a specific community member asks for such help or support. Finally, many of the posts and comments on Facebook include terms indigenous to the TinyKittens online community. If I had to summarize what information is exchanged on the TinyKittens online community into one word, it would be *supportive*.

6.5.2 Research Question # 2 How does the information exchanged by TinyKittens online community members provide evidence for the community-based (virtual) human-animal bond?

6.5.2.1 The Human-Animal Bond Can be Experienced Virtually

Research has shown that animals can provide stress relief and relaxation with only a visual presence (Ulrich, 1993; Beck & Katcher, 1996; Friedmann et al., 2000; Anderson, 2008; Olmert, 2009; Zilcha-Mano et al., 2012; Bradshaw, 2013; Carter & Porges, 2016; Hart, 2018). In fact, humans have shown a visual fixation towards animals for thousands of years, as demonstrated by cave paintings and ancient statues (Enders-Slegers, 2000; Olmert, 2009). In more modern times, some of the most popular television shows and movies are based on animals, such as Animal Planet, which is watched by over 80 millions homes in America and broadcast to at least seventy countries worldwide (Anderson, 2008).

One of the reasons why humans are so drawn to visualizations of animals and nature relates back to the biophilia hypothesis from Wilson. Humans, in general, are drawn to animals due to a “longing for a bond with nature” (Anderson, 2008, p. 20). Humans may feel an even stronger need to bond with nature in modern times due to the excessive urbanization of society and the increasing detachment from nature in everyday life (Kellert, 1993; Wilson, 1993; Dresser, 2000). The biophilia hypothesis is the reason why “natural events and animals in motion would have an innate capacity to draw our attention...and in so doing would produce a state of relaxation” (Beck & Katcher, 1996, p. 123).

Another reason humans are drawn to animals, specifically cats and dogs, is because humans are biologically wired to respond to cuteness (Anderson, 2008; Tucker, 2016). Cuteness can be defined as animals with “large, symmetrical heads with large eyes, small mouths and small noses” and “involves a look of youthfulness and helplessness, such as unsteady limbs” (Anderson, 2008, p. 48). Studies have shown that when humans are shown images of cuteness, the area of the brain also known as the pleasure centre is activated (Anderson, 2008).

Research has found that watching animals can have a positive effect on mood and emotions of humans (Beck & Katcher, 1996; Friedmann et al., 2000; Olmert, 2009). One specific study established that watching an aquarium with fish (and even in some cases, an aquarium without fish) can decrease blood pressure and reduce stress and anxiety (Beck & Katcher, 1996; Friedmann et al., 2000; Olmert, 2009). And patients in hospital rooms that had a view of a park and trees not only used less pain medication, but were discharged an average of one day earlier than those who did not have such a view (Beck & Katcher, 1996). In fact, oxytocin, one of the main hormones associated with the human-animal bond, is released when humans simply watch nature or animals (Olmert, 2009).

Cats have the ability to draw a smile and even a laugh out of someone who is socially withdrawn and isolated, and laughter really does have a positive impact on human emotions (Beck & Katcher, 1996). Watching cats play not only makes us laugh, but it can indicate to the watcher that it is possible to *live in the moment* and forget about the consequences of specific actions (Beck & Katcher, 1996). Cats simply do what they find interesting and fun, regardless of the outcome. Cats can also draw the eye because of their ability to tip-toe delicately among obstacles and explore a cardboard box endlessly (Beck & Katcher, 1996). They do this completely and totally without any self-consciousness (Beck & Katcher, 1996).

TinyKittens online community members have the ability to watch cats and kittens live, 24/7 on either YouTube or Livestream. The cats and kittens on these live video streams are often playing with toys or each other, sleeping (in extremely funny positions), fighting each other for the milkbar, being cleaned up by their mommas, exploring new spaces and toys, and much more. TinyKittens online community members have the chance to watch recorded videos of the cats and kittens, including those that may not appear on the live video streams, and to view dozens of photos

posted by Shelly and other community members daily, most of which are chosen because of their humorous nature. TinyKittens online community members have no shortage of visualizations of adorable and cute cats and kittens to see every day. And based on the emotions outlined later in this section, the visuals being seen appear to be having a positive impact on community members.

6.5.2.2 The Community-Based Human-Animal Bond

In many cases, the human-animal bond is described as an interaction between one human and one non-human animal. In some cases, it might also include interactions between one human and multiple non-human animals (e.g., litter of kittens or puppies, an aquarium full of fish, etc.). But only in a few cases is the human-animal bond described as interactions between multiple humans and one or more non-human animal.

Studies have shown that owning a dog can be beneficial to a neighbourhood because it allows neighbours to get out of their homes and interact with each other (Wood, Giles-Corti, & Bulsara, 2005; Wood, Giles-Corti, Bulsara, & Bosch, 2007; Wood et al., 2017). The dog, by virtue of needing to be walked, almost forces humans to be social. And humans who live in a more social community tend to consider the neighbourhood a safe place to live (Wood et al., 2005, 2007, 2017). This extension of the human-animal bond involves a non-human animal as the catalyst—or social lubricant—for the social behaviour, but there is no reason this social behaviour (and the associated benefits) cannot be found in a virtual community or neighbourhood.

TinyKittens online community members come to TinyKittens because they have an interest in cats and kittens. This shared interest is like the neighbourhood and the cats and kittens are like the dog that needs to be walked. The cats and kittens are the catalyst that brings humans to the TinyKittens neighbourhood. Once they arrive, members may simply observe what is going on (e.g., watch videos, read the YouTube chat, read Facebook posts and comments, etc.) but may not directly interact. Over time, these lurkers may decide to interact with their neighbours, but others may choose to only lurk. Other members interact right away and may, in turn, form relationships with other members of the community. Both the lurkers and the participants benefit in some way from being members of the neighbourhood, just like non-dog walkers still benefit from living in a community that feels safe and inviting.

This is the community-based human-animal bond. The bond that develops not only between humans and non-humans, but also between multiple humans because of a non-human. The important aspect of the community-based human-animal bond is that it involves a non-human animal as the catalyst for the interaction between humans. The catalyst of a non-human animal allows for the concepts of both biophilia and the human-animal bond to be considered and included as part of the benefits.

6.5.2.3 Summary of Answer to Research Question #2

In the Literature Review chapter, the human-animal bond is described as a mutually beneficial relationship between a human and a non-human animal (AVMA, 2019). It is mutually beneficial because it has positive impacts on both the human and the non-human animal (AVMA, 2019). The AVMA (2019) says that emotional, psychological, and physical interactions between the human and non-human animal can produce these benefits.

The benefits of the human-animal bond *to humans* can be both psychological and physiological (The Center, 2019). The human-animal bond can allow humans to experience positive emotions, which in turn can improve both their mental and physical health (Carter & Porges, 2016). Interactions with non-human animals can lead to social interactions with other humans (as described above), which can improve the health of humans (Serpell, 2000; Rowan & Beck, 2008; Ling, Kelly, & Diamond, 2016).

Members of the TinyKittens online community, based on the themes developed in the Results chapter, are happy and supportive (or supported), regularly share personal information, constantly help other community members, often find stress relief and relaxation from TinyKittens, and care deeply about the well-being of cats and kittens. The support, personal information, help, stress relief, and relaxation shared and found by TinyKittens online community members is almost entirely related to cats and kittens. (In other words, if it were not for cats and kittens, almost no information of any kind would be exchanged in the TinyKittens online community.)

Members of the TinyKittens online community only experience these emotions and participate in these social interactions *because* cats and kittens are the main subject. The specific individuals who decide to join the TinyKittens online community

do so because of their love for cats and kittens, and the bond they feel towards the cats and kittens they watch on TinyKittens. This is not to say that cats and kittens could not be replaced with another animal, only that in this specific community's case, cats and kittens are the glue that holds it together.

Participation in the TinyKittens online community provides members with happiness, support, and stress relief. These benefits occur both because of their membership in the community and their ability to watch cats and kittens. And these are the same benefits a human receives when they experience the human-animal bond. It is for this reason that I conclude that members of the TinyKittens online community do experience a community-based (virtual) human-animal bond.

6.5.3 Triangulation of Evidence

The main data analysis for this study was conducted using data from five Facebook pages: TinyKittens, TinyTuxies, TinyTapeworms, Grandpa Mason, and TinyKittens Unite. But Facebook is not the only social media platform on which TinyKittens online community members can watch cats and kittens interact with each other. The TinyKittens HQ YouTube channel is a major part of TinyKittens' online presence and, in some ways, might even be considered its crowning jewel. It is on YouTube that anyone with an internet connection can watch cats and kittens eat, sleep, poop, and play 24 hours-a-day, seven days-a-week.

The purpose of this study was to analyze the specific posts and comments of members of the TinyKittens online community in order to provide evidence of the benefits they receive from their membership. And that those benefits are felt due to the community-based (virtual) human-animal bond, a concept I developed for the purpose of this study. Since the TinyKittens online community is much more than its Facebook pages, I wanted to take this opportunity to confirm the results of the analysis from Facebook with data from the YouTube (or Livestream) chat (which was also collected in 2018). The purpose of this triangulation is to show that benefits community members received from their Facebook use is not the exception, but the norm. In order to show that the results of the data analysis can be applied to YouTube and more recent Facebook posts, I will examine each of the five main themes separately below.

6.5.3.1 Theme 1: Happy and Supportive Individuals

The first theme is that TinyKittens online community members are typically happy, supportive individuals. This means, for the most part, community members are nice to each other, usually in a good mood, and are very supportive of other community members. In the first example below, Figure 63, multiple community members take the time to thank the chat mods for cc'ing a visit with Shelly. Community members also thank the mods in Figure 64 and Figure 66, again for cc'ing Shelly's visit and for what they do in general. Figure 66 also thanks Shelly for broadcasting the kittens' field trip to visit Grandpa Mason. Figure 64 shows community members being supportive to another community member whose cat is having medical issues. And Figure 67 shows how happy community members tend to be when watching the live video streams.

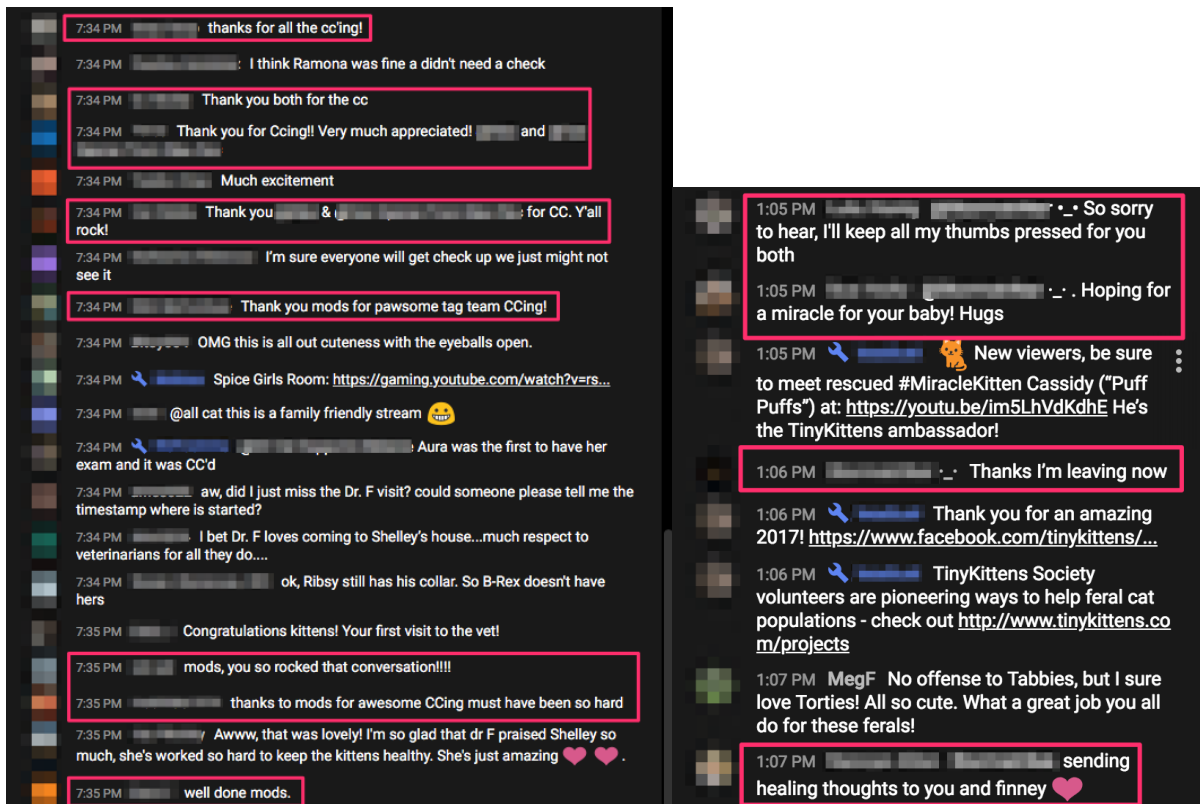


Figure 63 [left]: Screenshot from May 11, 2018 showing eight different community members thanking the mods (i.e., chat moderators) for cc'ing (closed captioning) during Dr. F's (the vet) visit.

Figure 64 [right]: Screenshot from May 12, 2018 showing three community members (top and bottom boxes) providing support to another community member (middle box) whose cat is having medical problems.

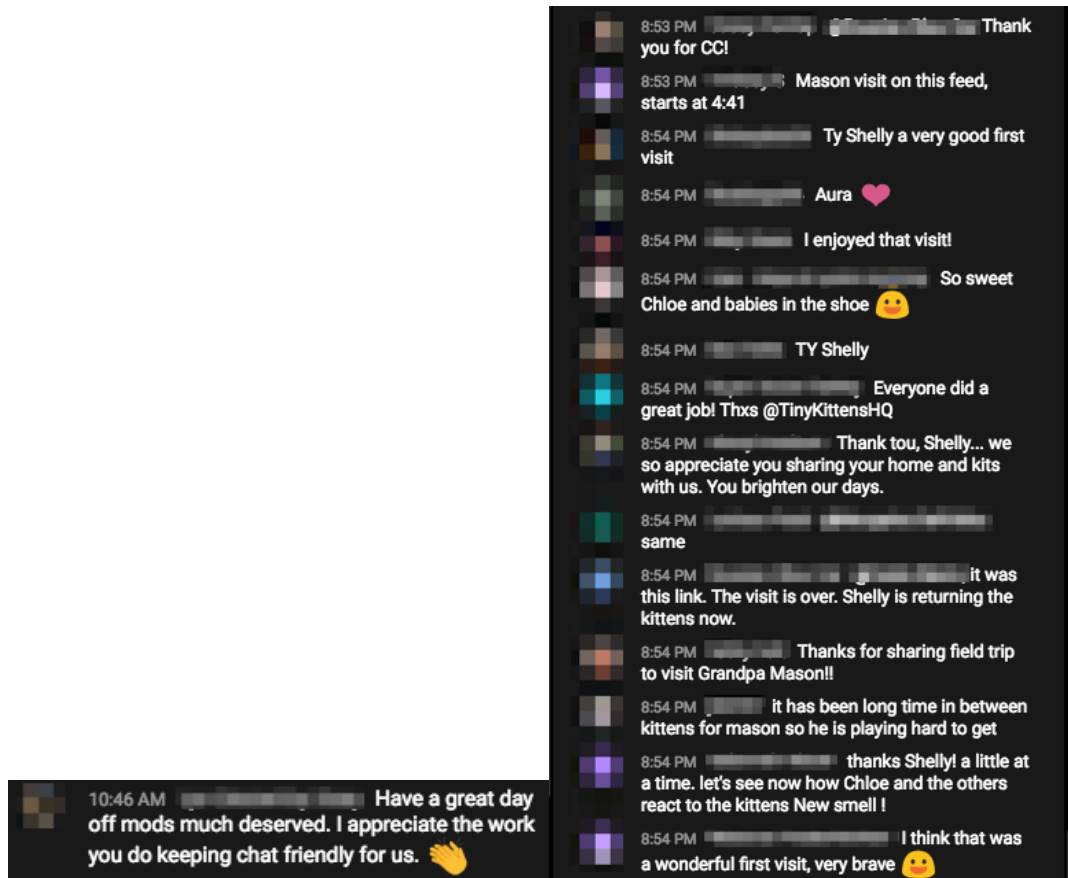


Figure 65 [left]: Screenshot from May 27, 2018 showing (yet another) supportive comment directed towards the mods on YouTube. Figure 66 [right]: Screenshot from May 28, 2018 showing a few comments of gratitude to both mods (for cc'ing) and to Shelly (for showing the kittens first visit with Grandpa Mason).



Figure 67: Screenshot from June 2, 2018 showing one community member's comment about her laughing that day. This example shows the happy side of the theme more than the supportive side.

6.5.3.2 Theme 2: Share Personal Information

The second theme is that TinyKittens online community members often share personal information. They share this personal information for a number of reasons. Sometimes in order to provide empathy for a specific situation another member is going through (e.g., *I got cancer last year and know how scary it is*). At other times, it is shared in order to provide context to the wider post or comment the member wrote (e.g., *I would adopt another cat, but my apartment building only allows 2 and I already have 3*). Figure 68 provides an example of a community member sharing personal information in order to provide context.

The type or significance of the personal information shared differs between members. All of the examples provided below are YouTube comments where some form of personal information is shared, although some seem more personal than others. I consider personal information to be anything about yourself from the real world, such as: where you live, marital status, whether you are a parent, medical conditions or treatments, where you work, details about your pets, etc. What may be extremely personal to one person may not be overly personal to another, which is likely why the range of personal information shared is so wide. For example, Figures 69, 70, 71, and 72 show the variety of personal information members share with each other.



Figure 68 [left]: Screenshot from May 4, 2018 showing a community member's comment with personal information. In this case, they were responding to another community member who said ginger cats are very sweet.

Figure 69 [right]: Screenshot from May 11, 2018 showing a community member's comment with personal information.

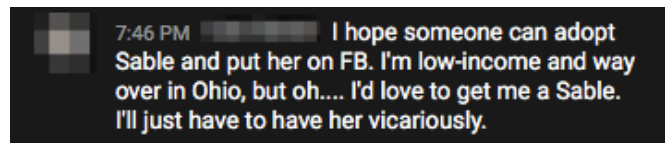


Figure 70: Screenshot from May 11, 2018 showing a community member sharing personal information in her comment about wanting to adopt Sable (a former feral momma cat).

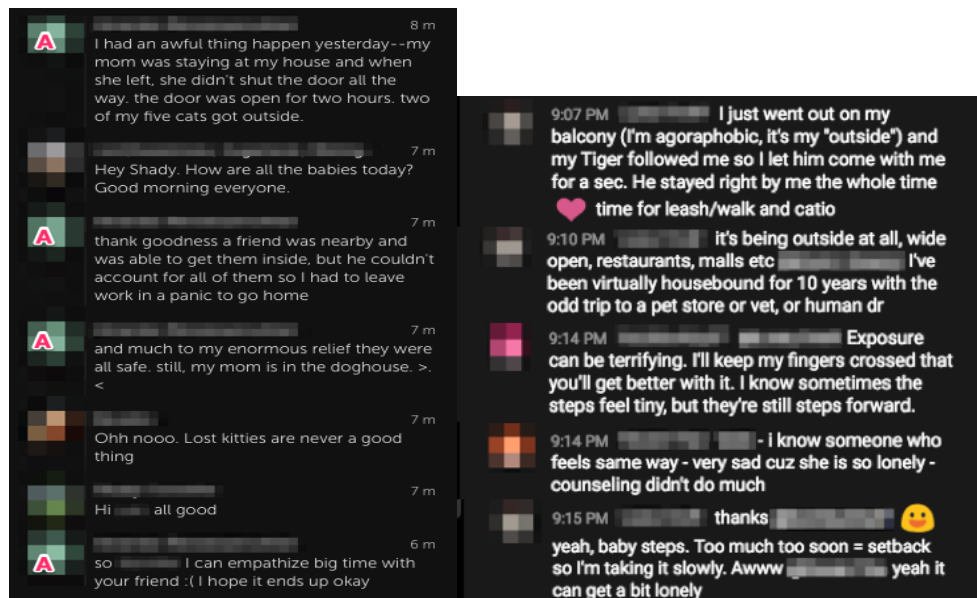


Figure 71 [left]: Screenshot from May 15, 2018 showing one community member (A) telling a story about a recent event at their home. Their last comment shows that they shared this personal information so they could empathize with another member.

Figure 72 [right]: Series of screenshots from May 28, 2018 showing a community member telling their story about being agoraphobic (first, second, and last comments) as well as two other members being supportive.

6.5.3.3 Theme 3: Help Other Community Members

The third theme is that TinyKittens online community members endeavour to help each other. Sometimes that help is provided on behalf of Shelly and TinyKittens, such as Figure 73, which shows a mod sharing information about which cats are available for adoption. Other times the help is provided by community members for Shelly, while she is on the live video stream, as in Figure 74. Figure 75 shows multiple community members helping (what I assume is) a new member who had questions about Grandpa Mason. TinyKittens online community members seem to enjoy talking about TinyKittens with new members.

Figure 76 is a slightly different example of a community member providing help. In this example, a community member is providing a suggestion to other members who are anxious about something happening on the live video stream. (In TinyKittens terms, this is when someone is *clutching their pearls*.) In this case, the comment could be taken as helpful and supportive, but it could also be taken in a *who does she think she is* sort of way. This community member is likely trying to be helpful, but is also likely frustrated by all the other members posting their worried thoughts on the chat and possibly getting other people riled up.

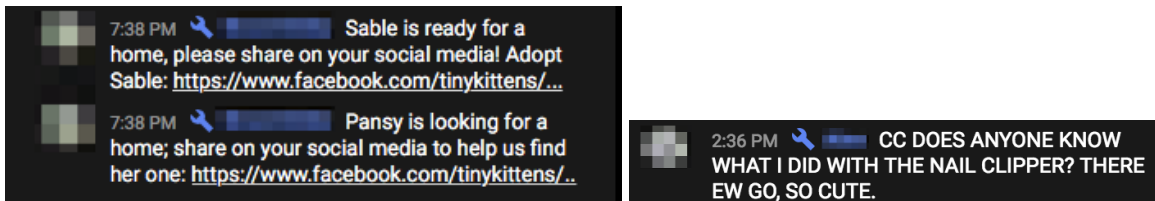


Figure 73 [left]: Screenshot from May 11, 2018 showing two comments from the a mod regarding cats available for adoption at TinyKittens. Mods regularly 'advertise' the same things on YouTube that Shelly 'advertises' on Facebook.
 Figure 74 [right]: Screenshot from May 24, 2018 showing a CC comment from a mod—which means it is Shelly talking on the live video stream—where Shelly has asked the viewers where she put the nail clippers. Shelly often asks viewers for help with remembering things (e.g., the weight of a kitten) or telling her where she put something.

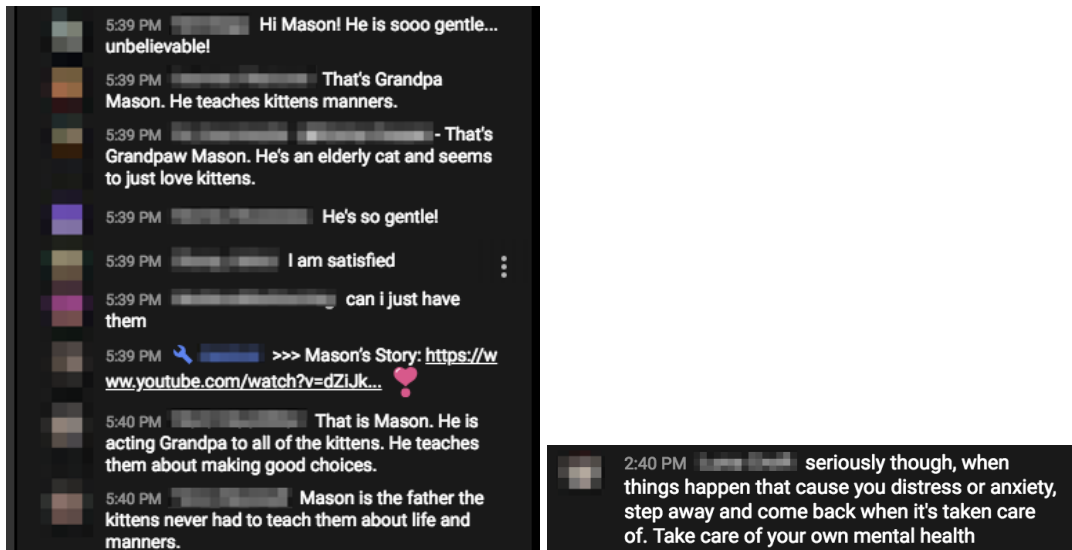


Figure 75 [left]: Screenshot from June 4, 2018 showing part of a conversation that started with someone asking who Grandpa Mason was and five different community members answering the question.

Figure 76 [right]: Screenshot from June 15, 2018 showing a community member making a suggestion to other members who are getting anxious from watching the live video stream. The anxiety members are feeling, however, is not because of the live video stream, but because one of the kittens got his jaw caught in his collar.

6.5.3.4 Theme 4: Happiness and Relaxation

The fourth theme is that TinyKittens online community members find happiness and relaxation within the community. And that they find this happiness and relaxation from both humans and cats and kittens. Figures 77, 78, 79, and 80 provide examples of the statements community members make about watching the live video stream (and to which I can personally attest). Figure 81 shows the happy tears that some community members feel towards the kittens, especially those that are sick and make a comeback.



Figure 77 [left]: Screenshot from May 4, 2018 showing a comment from one community member regarding the addiction that is the TinyKittens live video stream.

Figure 78 [right]: Screenshot from May 4, 2018 showing a comment from a community member who is obviously a dedicated viewer. It is doubtful they would rush home from work if they did not enjoy watching the *hooman* (folk term) visit.

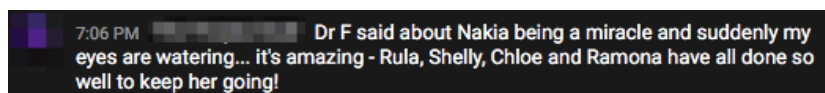


Figure 79: Screenshot from May 11, 2018 showing a comment from a community member who is very excited that Nakia (a kitten) is doing well, considering the vet (Dr. F) said she was a miracle. In this case, while the community member mentions being near tears, those are tears of joy, not sadness. (Rula, Chloe, and Ramona are the momma cats. Rula is Nakia's mother.)

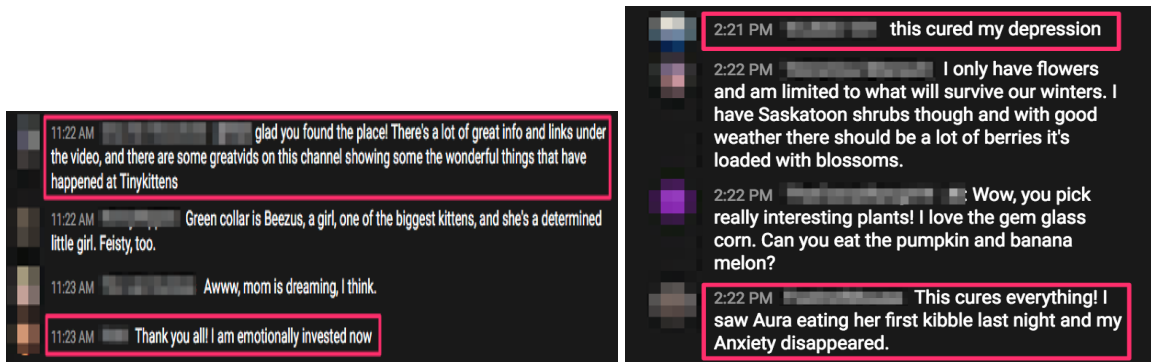


Figure 80 [left]: Screenshot from May 15, 2018 showing one community member (first box) telling a new member where they can get additional information about TinyKittens. The new community member (second box) responds that they are now hooked. Figure 81 [right]: Screenshot from May 21, 2018 showing two community members commenting about the psychological benefits they have received from watching TinyKittens.

6.5.3.5 Theme 5: Care Deeply about Cats and Kittens

The fifth theme is that TinyKittens online community members care deeply about the well-being of cats and kittens. Both cats and kittens in general and those at TinyKittens. After all, there would be no TinyKittens online community if not for the cats and kittens. Not just because cats and kittens are what the TinyKittens organization rescues, but also because that is the topic that drew, and continues to draw, members to the community. Individuals find TinyKittens in a number of ways—word of mouth, links on YouTube, Google search—but they stay because they like, love, admire, care for, and share a bond with the cats and kittens they see and hear about on TinyKittens.

While I cannot say this for certain, I imagine that most community members are like myself—they were cat lovers before they found TinyKittens and TinyKittens provided them with a place they could go to talk about cats and kittens without sounding like a moron. I imagine some community members developed an affection for cats and kittens *after* joining TinyKittens, but I would think this number would be fairly small. And if anything, the community members who came to admire cats and kittens *after* joining the community may have been introduced to TinyKittens by an existing community member, meaning they had multiple sources of influence.

The care and concern TinyKittens online community members have towards the cats and kittens at TinyKittens is vast. Figure 82 provides an example of multiple community members discussing potential methods for providing more heat to one of the nests without putting the kittens in danger. Figure 83 provides an example of a community member who has become attached to Aura and is trying to be optimistic

and pragmatic at the same time. Figure 84 provides an example of a community member wondering how the live video stream has helped kittens and opining that there are always kittens in need of help. Figure 85 provides an example of a community member who is grateful one more feral cat is *off the streets* and does not have to worry about getting pregnant over and over. And Figure 86 provides an example of a community member who helps cats and kittens in their own community.

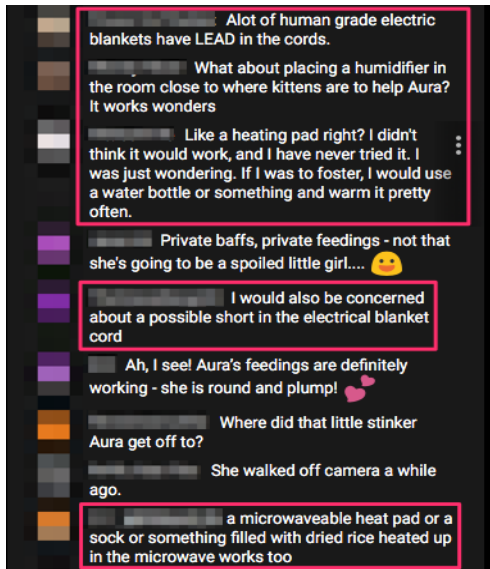


Figure 82 [left]: Screenshot from May 3, 2018 showing a portion of a conversation between multiple community members (in the boxes) regarding possible ways to provide more warmth in one of the nests.

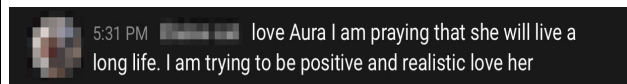


Figure 83 [right]: Screenshot from May 4, 2018 showing a comment from one community member regarding Aura's prognosis.

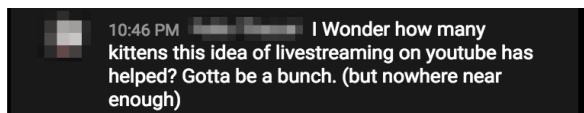


Figure 84 [left]: Screenshot from May 6, 2018 showing a comment from a community member who is happy that the live video stream is helping cats and kittens.

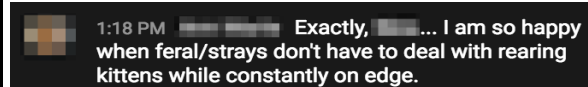


Figure 85 [right]: Screenshot from May 13, 2018 showing one community member's comment about cats who are not neutered or spayed constantly having kittens in the wild.

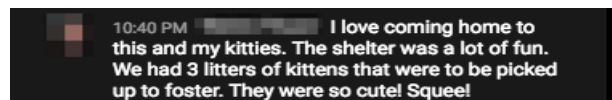


Figure 86: Screenshot from May 22, 2018 showing a comment from a community member who not only loves to watch the TinyKittens live video stream, but also volunteers at a cat rescue.

6.5.3.6 It Is Not All Sunshine and Rainbows

Life within the TinyKittens online community is typically happy and supportive, but not always. There are times when arguments and bickering win out—just like in any family—and some community members end up frustrated and even mad. While these

incidents are few and far between, I was able to show some examples from Facebook, therefore, I wanted to show some examples from YouTube (or Livestream). Figure 87 provides an interesting example. In this case, the screenshot is from the VIP chat whose viewership is much lower than the viewership on YouTube. Because of that decreased viewership, chat moderators are not required. VIP members, in this example, are glad they do not have to watch via YouTube because there tends to be more bickering on the YouTube chat.

Figure 88 provides an example similar to the *in Shelly we trust* comments mentioned earlier. Community members often come to Shelly's defense when someone has criticized her or suggested she may be doing something incorrectly. And this example comment is relatively tame in comparison to some of the comments made in defense of Shelly. Not questioning or criticizing Shelly appears to be an implicit social norm in the TinyKittens online community.

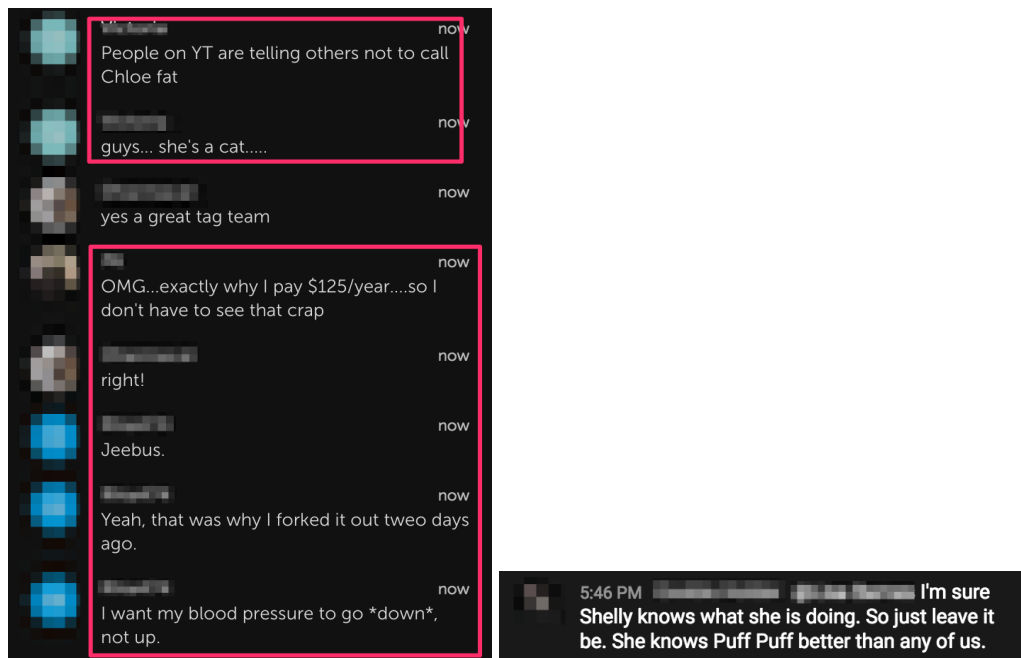


Figure 87 [left]: Screenshot from the VIP live video stream on the Livestream platform on May 11, 2018. The comments within the boxes show a conversation between VIP members as to one of the reasons why they have signed up for VIP access—to avoid the bickering on YouTube.

Figure 88 [right]: Screenshot from June 13, 2018 providing a perfect example of a community member coming to Shelly's defense when another community member has said something negative. It is also an example of one of more polite versions of this type of comment.

6.6 Chapter Conclusion

Members of the TinyKittens online community benefit tremendously from that membership. As both a virtual community and an information world, members of the TinyKittens online community exchange a variety of information that is not only interesting and useful, but personal, supportive, and overwhelmingly positive. Members help each other with problems and questions, and even those who do not directly interact (e.g., lurkers) can benefit.

Research has shown that the human-animal bond can be experienced virtually. Members of the TinyKittens online community experience emotions via social interactions and multi-media that are examples of the positive experiences of the human-animal bond. I believe that the positive effects felt by community members are, in fact, the human-animal bond in a virtual environment. In addition, due to the community nature of the experience (rather than a one-on-one experience), I also believe that the human-animal bond experienced by TinyKittens online community members can be considered a community-based (virtual) human-animal bond.

CHAPTER 7 CONCLUSION

“Time spent with cats is never wasted.” Sigmund Freud

7.1 Chapter Overview

Overstating the importance of the impact of companion animals on our lives is nearly impossible... Those of us who live with animals have known for decades what research is catching up to: companion animals are critical to human culture and sustain humans in innumerable ways... Each animal is special to us for reasons unique to the animal, the person, and the situation, but each fills a role that would otherwise go wanting, or they fill it in a way nothing else can. (Anderson, 2008, p. 72)

Cats are everywhere. They dominate the internet in ways no one, including the inventor of the world wide web, could have predicted. Yet, the reason why they dominate the internet or the ways in which that domination impacts humans, is not well understood. I believe this thesis addresses some of these gaps.

This study set out to understand the ways in which members of the TinyKittens online community receive benefits from their membership. This study focused on the TinyKittens online community specifically, as it was a great example of not only a virtual community but also of an information world. Both concepts provide a basis on which to examine the information exchanged amongst members of an online community and the effects that information exchange has on those members.

This study also examined the TinyKittens online community from the perspective of the biophilia hypothesis and the human-animal bond. “Biophilia... is the innately emotional affiliation of human beings to other living organisms” (Wilson, 1993, p. 31), which includes cats and kittens. The human-animal bond is “a mutually beneficial and dynamic relationship between people and animals” (AVMA, 2019, n.p.). One benefit of the human-animal bond is that it is not “a function of a person’s career, achievements, race, or ethnicity... Companion animals do not care whether you are coming home from a job in a corporate office or a visit to the unemployment office” (Anderson, 2008, p. 33). While the majority of previous studies have researched the human-animal bond through experiments where non-human animals are in the same physical location as the humans, studies where non-human animals are being watched, instead of touched, have also been conducted (Beck & Katcher, 1996; Friedmann et al., 2000; Olmert, 2009). These studies show that humans can feel the positive effects of the human-animal bond through observation (Beck & Katcher, 1996; Friedmann et al., 2000; Olmert, 2009). And,

the internet is a great way to observe cats and kittens 24 hours-a-day, seven days-a-week.

Biophilia and the human-animal bond are important because they can generate the hormone oxytocin, which can reduce stress, anxiety, depression, cortisol levels, and blood pressure (Beetz & Bales, 2016). Even better, oxytocin can be produced through both touch and observation (Olmert, 2009). That means humans can experience the positive effects of oxytocin from viewing or watching something, not just through in-person interaction (Olmert, 2009), the same as the human-animal bond.

Since the TinyKittens online community is virtual, being able to use theories that could be applied virtually was essential. While TinyKittens, as a whole, includes both an online and offline component, only the online component was included in this study. That online component consists of multiple Facebook pages, multiple YouTube live video streams (with synchronous chats), and one Livestream live video stream (also with synchronous chat). These social media platforms allow members of the TinyKittens online community to interact in a variety of ways. And it is important to note that this *interaction* does not have to include *active participation*. For example, some community members may only watch videos and read posts, but not contribute to the chat or write a comment. The level of participation, to some degree, does not matter. Information can be exchange by watching and reading as well as through active participation. The information, regardless of how a community member contributes to the community, is valuable to all members. And all members will, in turn, benefit from oxytocin release and the human-animal bond.

While surveys are the typical method for collecting the thoughts and ideas of virtual community members, this study chose to use the participants' own words. Posts and comments from the five in-scope Facebook pages were collected, coded, and analyzed for elements of information exchange and the human-animal bond. The codes used were developed specifically for this study and included, among others, descriptive and emotion codes that could be applied to both text and visual media (e.g., photos, emojis, stickers, etc.). This study also explored the unique aspect of the TinyKittens online community indigenous language and vocabulary, which is rather extensive.

In all, 243 posts from the official TinyKittens Facebook pages, plus 71 posts from the TinyKittens Unite Facebook page, plus over 700 comments from the official Facebook pages, plus over 2,700 comments from TinyKittens Unite were coded and analyzed in

NVivo. This coding and thematic analysis concluded with the discovery of five major themes,

1. TinyKittens online community members are typically happy, supportive individuals.
2. TinyKittens online community members regularly share personal information.
3. TinyKittens online community members endeavour to help other community members.
4. TinyKittens online community members find happiness and relaxation within the community, from both cats and kittens, and other humans.
5. TinyKittens online community members care deeply about the well-being of cats and kittens in general, and develop a bond with all the cats and kittens in the care of TinyKittens.

The themes, in turn, helped to confirm the answers to the two research questions. First, that the vast majority of information exchanged within the community is supportive. And second, that participation in the TinyKittens online community, through watching the live video streams and through posts and comments on Facebook and YouTube, provides members with happiness, support, and stress relief. Which means that TinyKittens online community members are experiencing the same benefits as the human-animal bond, but in a community-based, virtual way.

7.2 Limitations & Future Studies

Like any research study, this study does have its limitations. First and foremost, the results of this study cannot be generalized to *all* online communities associated with animals, or even all online communities associated with cats. While it is likely that many of the benefits shown for the TinyKittens online community exist in other online communities, without actual study, I cannot state that as fact. A fascinating future study could include other online communities that have both a live YouTube channel and a Facebook page, but are not necessarily cat-related. For example, examining April the Giraffe's online community may show the same results, but with the human-animal bond being with a non-companion animal.

While this thesis provides insight into *how* the benefits of the TinyKittens online community are related to specific theories, I used only a portion of the data. While it is highly unlikely that studying additional data will show different results, adding data

from other times of the year or from specific events may show some additional benefits (or downsides) that were not previously found. Now that an initial study has been conducted, and the codebook has been consolidated, an interesting future study could be to include more data (either all the data from the six-months of the current study or by expanding the timeframe) and analyze that data using automated means rather than manual coding. Such a study may provide the same conclusions as this study, but from a *big data* perspective.

The fact that I developed the conclusions of this study by analyzing Facebook posts and comments, rather than surveying or interviewing community members, may be seen to some as a limitation. As I mentioned earlier, survey methods, while common, also have some downsides. Participants taking a survey know that they are being studied and may provide answers they think the researchers want to see. Alternatively, using the unedited text from posts and comments on Facebook provided a more accurate view of what was happening in the community and the feelings being expressed by its members at the time. It would, however, be very interesting to supplement this study with a survey of TinyKittens online community members. A survey may provide some interesting data that could be used as examples of both benefits and downsides. And, a survey could ask specific questions related to *why* community members feel the way they feel, or do the things they do. Unless the *why* was explicitly stated in the post or comment, I could only guess at what the reasoning may have been.

Finally, many previous studies associated with the human-animal bond and oxytocin have included experiments and medical tests (e.g., heart rate, blood pressure, cortisol levels, etc.). Unfortunately, aspects of that magnitude were simply not possible for this study as I had no funding, little time, and no expertise in medicine. However, one potential future study could replicate one of these previous studies by measuring vital signs before, during, and after a live video was watched (rather than interaction with a pet). This would provide empirical, quantitative proof of the findings outlined in this qualitative study. It is possible that such a study may show other physiological effects that are not easily measured via member comments.

7.3 Contributions to Society

Not everyone who loves cats is able to have a pet cat. Having a pet is not cheap. Some individuals simply do not have the funds available to pay for a cat. Others may live somewhere that does not allow pets (e.g., nursing homes, hospitals, homeless shelters, university dormitories, parents' house, military barracks, etc.). Some may have medical or physical reasons that prevent them from being able to have a pet cat (e.g., severe allergies, asthma, physical disabilities).

Not everyone who wants to interact socially is able to do so, for a number of reasons. They may have physical disabilities that prevent them from leaving their home. They may not have access to personal or public transportation, or the funds to pay for such transportation. There may not be any venues where they can go to socialize, either due to location or lack of time. Even individuals who are able to overcome some or all of these limitations may still find that the social interactions in which they can participate have nothing to do with their preferred topic of discussion, cats.

Having a place online where individuals can go to watch live videos of kittens playing and chat with other people who share their interests cannot be a bad thing. Especially if that individual views their online experiences as beneficial or positive. These individuals may even have one or more cats of their own, and get to experience the human-animal bond in-person with their own cats, but having a place where they can share stories and photos of their own cats may make them happy and excited. (Having dozens of people tell you your cat is adorable sure does make you feel good!)

When social media and internet studies are conducted, researchers need to be more aware of a variety of personal situations many people find themselves in that simply prevent face-to-face interactions. And they need to take these situations into account when drawing their conclusions. Yes, there might be individuals who could really use more face-to-face interaction, but the solution is not as simple as having those individuals go offline. The solution may require major infrastructure, funding, and cultural shifts in society. The solution may also require education in internet and social media literacy from a very early age and education on moderation. In the end, I hope that this study also helped to provide the following insights,

1. Social media and the internet do have some upsides.
2. Online communities can provide benefits to all types of individuals.

3. The human-animal bond is an important aspect to the lives of many individuals.
4. It is possible to get some of the benefits of the human-animal bond in an online environment.

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APPENDICES

Appendix A Project Codebook

The following tables display the full codebook used for this study. A description of how the codes were developed can be found in Section 4.6.1.

A.1 Attribute Codes

Attribute Codes are to be used to collect specific demographic attributes mentioned by members of the TinyKittens online community, except Shelly (whom we already have much of this information for). Code the specific word that represents the Attribute Code, or the entire sentence in which the attribute is mentioned, whichever makes more sense.

Table A1

Attribute Codes, Descriptions, and Examples

Code	Description	Examples
Geographic Location	The mention of an explicit geographic location such as a city, state, province, or country. Or the mention of an implicit location that can be inferred from the text.	Explicit: Toronto Implicit: Windy City
Gender	The mention, explicitly or implicitly, of the gender of the community member.	Explicit: <i>I am a woman who...</i> Implicit: <i>I opted for an off-white wedding dress.</i>
Employment	The mention of a specific job or career held by the community member. Or the mention of a work location that the job can be inferred from.	Explicit: <i>I'm a court reporter.</i> Implicit: <i>I've worked at 3 different vet clinics in 2 years.</i>
Age	The mention of a specific age or an age group.	Explicit: <i>I just celebrated my 30th birthday.</i> Implicit: <i>I'm finally able to get the senior's discount.</i>
Family Situation	The mention, explicitly or implicitly, of any type of family situation. This could include both the <i>type</i> of family member the community member is (e.g., mother, father, aunt, uncle, son,	Type: <i>My son...</i> Situation: <i>My ex-husband...</i>

Code	Description	Examples
	daughter, etc.) or the specific situation in which the community finds themselves (e.g., single, married, divorced, separated, living at home, etc.).	
Cats	The mention, in any way, of a cat or cats that are owned, fostered, or taken care of by the community member. If the community member mentions what <i>type</i> of cat it is (i.e., owned, foster, stray, etc.), include the appropriate sub-code.	Explicit: <i>My cat Bob... or My two foster kittens...</i> Implicit: <i>I wish I had been able to keep Fluffy, but she found a good home.</i>
Medical Conditions	The mention of any type of medical condition—physical or psychological. If the community member indicates which person the medical condition applies to (e.g., themselves, family member, or cat), include the appropriate sub-code.	Explicit: <i>My Mom has dementia.</i> Implicit: <i>Fluffy isn't eating and is at the vet today.</i>

Note: While Attribute Codes were captured during coding, the relatively few situations where they occurred resulted in these codes not being used in the thematic analysis.

A.2 Descriptive Codes

Descriptive Codes are to be used to categorize the topic or the purpose of the post and/or comment. There are four sub-groups of Descriptive Codes to be used based on where the post or comment is from—Shelly's Posts, Comments to Shelly's Posts, TKU Posts, and Comments to TKU Posts. For TKU Posts and Comments to TKU Posts, add the appropriate second code for posts and comments with the following items, or only the following items: photos, videos, GIFs, Stickers, Emojis, or Emoticons. Code the entire sentence of the post or comment that represents the Descriptive Code. Only one Descriptive Code can be used per sentence, but multiple codes can be used within a post or comment.

Table A2

Descriptive Codes, Descriptions, and Examples

Code	Description	Examples
<i>Shelly's Posts</i>		
Adoption	Sentences in which Shelly mentions	<i>Chloe is now ready for</i>

Code	Description	Examples
	one or more cats or kittens that are available for adoption. Usually includes a URL to the adoption application.	<i>adoption. See tinykittens.com/adopt for details on the application process.</i>
Advertisement	Sentences in which Shelly advertises something about TinyKittens, such as the live video stream.	<i>Tune in now to see Grandpa Mason at tinykittens.com/live.</i>
Advocating*	Sentences in which Shelly makes one or more statements meant to advocate for cats and kittens in some way.	<i>This is why we spay and neuter.</i>
Announcement	Sentences in which Shelly announces an upcoming event at TinyKittens, such as TinySuitcases.	<i>Tune in on Friday at 10am for TinySuitcases for Chloe.</i>
Entertainment	Sentences in which Shelly provides an entertaining comment, photo, or video.	<i>[video] You haven't seen anything cuter than this today.</i>
Explanation	Sentences in which Shelly explains something she has already mentioned or provides additional information about something she has already mentioned. This code should never be used on its own.	<i>[topic] We do this because...This is important because...This is why...</i>
Funny*	Sentences in which Shelly says something funny or as a joke. This could include sarcasm.	<i>Cassidy the Miracle Kitten's bum slide.</i>
Request*	Sentences in which Shelly makes a request of the TinyKittens online community, such as for donations, prayers, wishes, etc.	<i>We are down to our last can of BabyCat dry food. If anyone is able to donate more this week...</i>
Thank You	Sentences in which Shelly thanks someone or something.	<i>Thank you to Mountainview Vet...</i>
<i>Comments to Shelly's Posts</i>		
Critical	Sentences in which a community member is critical of something Shelly has mentioned in her post.	<i>You shouldn't... You can't... That's not right...</i>
Funny	Sentences in which a community member makes a joke or says something funny in response to Shelly's post.	<i>[in reference to photo] I think I can fly!</i>
Gratitude	Sentences in which a community member thanks Shelly or TinyKittens for something.	<i>I am so grateful for TinyKittens being in my life.</i>

Code	Description	Examples
Observation*	Sentences in which a community member makes an observation about something from Shelly's posts (including an observation about a photo or video), an observation about something another commenter has said, or an observation about something personal.	<i>She is so adorable...His eyes are so beautiful...He can't possibly get any cuter...</i>
Personal Story	Sentences in which a community member mentions something personal about themselves, their cat(s), their family, etc.	<i>When I was a kid, I had a cat who...My cat Fluffy went to the vet today because...</i>
Prayer*	Sentences in which a community member says a prayer in response to something Shelly has posted.	<i>Dear God, please keep Aura safe during her surgery.</i>
Question*	Sentences in which a community member asks an explicit question.	<i>What type of cameras do you use?</i>
Sharing with FB Friends*	Comments in which a community member has included the name of a Facebook friend in order to notify that friend about the post.	<i>[account name]</i>
Simple Comment*	Sentences in which a community member has made some form of comment that does not fit into the other codes.	<i>Okay.</i>
Suggestion*	Sentences in which a community member provides advice or makes a suggestion. The suggestion can be directed at Shelly or another community member.	<i>You might want to...Have you considered...I once tried...</i>
Supportive	Sentences in which a community member makes some form of a supportive statement, either explicitly or implicitly.	<i>Whatever Shelly does will be the right thing.</i>
<i>TKU Posts</i>		
Announcement*	Sentences in which a community member announces a specific event. The event can be related to TinyKittens or to the member personally.	<i>I heard that TinySuitcases for Chloe is this week.</i>
Criticism	Sentences in which a community member criticizes something.	<i>My vet is an idiot...</i>
Educational	Sentences in which a community	<i>Here's a great website with</i>

Code	Description	Examples
	member shares information in order to educate the rest of the community about something.	<i>information on...</i>
Entertainment	Sentences in which a community member directs the community towards something entertaining, such as a video, webpage, or Facebook post.	<i>Grandpa Mason is making the rounds again [on a specific website].</i>
Explanation*	Sentences in which a community member explains something they have already mentioned or provides additional information about something they have already mentioned. This code should never be used on its own.	<i>We decided to do it this way because...When we tried it the other way, it didn't work.</i>
Funny*	Sentences in which a community member says something funny or makes a joke.	<i>This is how my Fluffy sleeps every night. [photo]</i>
Gratitude	Sentences in which a community member thanks someone or something, or mentions they are grateful for something.	<i>Thanks to TinyKittens...I love my vet...</i>
Personal Story	Sentences in which a community member mentions something personal about themselves, their cat(s), their family, etc.	<i>My cat Fluffy hasn't eaten in two days, has had diarrhea, and won't cuddle.</i>
Question	Sentences in which a community member asks an explicit question.	<i>What should I do? Does anyone know why this would happen?</i>
Request	Sentences in which a community member requests something from the community in general or from a specific community member. A request is not an explicit question.	<i>Posts photos of your ginger cats...Please send power of the paw for my Fluffy...</i>
Update in Post*	Sentences a community member has added to their original post, usually in order to update the community about something they mentioned in their original post.	<i>Update: Fluffy's vet said...</i>
Warning	Sentences in which a community member warns the community about something or someone.	<i>I just heard that X cat food has been recalled.</i>

Comments to TKU Posts

Code	Description	Examples
Advice	Sentences in which a community member provides advice or makes a suggestion to another community member. The advice can be directed towards the member who wrote the post or who wrote another comment.	<i>You may want to try...This worked for my cat...Have you considered...</i>
Answer	Sentences in which a community member answers a question. The question can be from the original post or another comment.	<i>You should...I would...</i>
Apology*	Sentences in which a community member apologizes for something they have done, or something someone else has done or said.	<i>I am sorry they were mean to you.</i>
Critical	Sentences in which a community member is critical about something included in the post or another comment.	<i>That's stupid...That will never work...</i>
Explanation*	Sentences in which a community member explains something they have already mentioned or provides additional information about something they have already mentioned. This code should never be used on its own.	<i>We've tried...When this happened before we...</i>
Follow-up Question*	Sentences in which a community member asks an explicit question in order to obtain additional information from the member who made the original post.	<i>Is your cat drinking a lot more than usual?</i>
Funny	Sentences in which a community member says something funny or makes a joke.	<i>[member replied to funny photo or video with a script of what the kittens were thinking]</i>
Gratitude	Sentences in which a community member thanks someone or something, or mentions they are grateful for something.	<i>I'm so grateful my vet figured that out...Thank you so much for all the POTP...</i>
Observation*	Sentences in which a community member makes an observation about something from the original post (including an observation about a photo or video), an observation about something another commenter has said,	<i>That looks broken...She's adorable...I love her nose...</i>

Code	Description	Examples
	or an observation about something personal.	
Personal Story	Sentences in which a community member mentions something personal about themselves, their cat(s), their family, etc.	<i>I know what you mean,...happened to my cat once.</i>
Power of the Paw	Specifically for the mention of <i>Power of the Paw</i> or <i>POTP</i> in either text or visual form (i.e., sticker, photo).	<i>Power of the Paw POTP</i>
Request*	Sentences in which a community member requests something from the community in general or from a specific community member. A request is not an explicit question.	<i>Suggestions welcome...If you have any ideas, let me know...</i>
Sharing with TKU Members*	Comments in which a community member has included the name of a Facebook friend in order to notify that friend about the post.	<i>[account name]</i>
Statement*	Sentences in which a community member has made some form of comment that does not fit into the other codes.	
Supportive	Sentences in which a community member makes some form of a supportive statement, except power of the paw, either explicitly or implicitly.	<i>You've done all you can...You're such a good meowmy...That was a great idea...</i>

Note: Descriptive Codes with an asterisk (*) were added during the coding process.

A.3 Process Codes

Process Codes are to be used when a TinyKittens online community member mentions any activity or action they have performed or are performing in the 'real world.' Process Codes are not to be used in Shelly's posts. The action or activity mentioned should relate in some way to watching or being a member of TinyKittens—or at least mentioned in such a way as to imply it is probably related to TinyKittens. Code the entire sentence (or more) where the action or activity is mentioned.

Table A3

Process Codes, Descriptions, and Examples

Code	Description	Example
Adopting	The mention of a community member adopting one or more cats or kittens.	<i>Before watching TinyKittens I was nervous about adopting a special needs kitten. But this weekend I adopted Fluffy, who has...</i>
Advising	The mention of a community member providing advice to someone based on information they learned from TinyKittens.	<i>My co-worker wanted to adopt a kitten, so I helped her figure out what she needed at home for a new kitten.</i>
Communicating	The mention of a community member communicating information (via an email, letter, etc.) they have learned from TinyKittens to a business, government, etc.	<i>I emailed my city council this weekend about the feral cat colony in my neighbourhood. I'm hoping they'll start a TNR program like TinyKittens.</i>
Donating	The mention of a community member donating money, services, or items to a cat-related charity, including TinyKittens.	<i>I donated my old towels to our local cat rescue.</i>
Educating	The mention of a community member educating someone regarding cats or kittens, cat rescue, TNR, etc.	<i>I made a presentation in class today about TNR, based on TinyKittens.</i>
Entertaining	The mention of a community member entertaining someone with photos or videos from TinyKittens.	<i>I showed that video of Mason to my friends at work, we couldn't stop laughing.</i>
Fostering	The mention of a community member fostering one or more cats or kittens because they were influenced by TinyKittens.	<i>TinyKittens reminded me how much fun it was to have kittens around, so I started fostering this weekend.</i>
Fundraising	The mention of a community member fundraising for a cat-related charity, including TinyKittens.	<i>There's a new fundraising event on TKU Market.</i>
Helping	The mention of a community member helping a person, group, or organization with something cat-related. Use this code when the help being provided cannot be narrowed down to one of the other codes.	<i>I was helping out at our local cat rescue this weekend.</i>
Learning	The mention of a community member learning something or educating	<i>I purchased that book about kittens so-and-so suggested</i>

Code	Description	Example
	themselves about something cat-related.	<i>yesterday.</i>
Listening	The mention of a community member taking the time to listen to someone they know who was having issues or was upset about something cat-related.	<i>She was so upset over losing her cat Fluffy. She told me all about the crazy things he used to do.</i>
Observing	The mention of a community member observing something cat-related in 'real life.'	<i>I finally spotted that feral cat that hangs around the area.</i>
Relaxing	The mention of a community member being able to relax because of something they saw or heard on TinyKittens.	<i>I watch TinyKittens when I get home from work in order to relax.</i>
Rescuing	The mention of a community member rescuing one or more cats or kittens.	<i>I have two cats I rescued from a local farm who could no longer feed them.</i>
Stress Relieving	The mention of a community member finding stress relief because of something they saw or heard on TinyKittens.	<i>Watching these kittens sleep relieves my stress.</i>
Supporting	The mention of a community member supporting a cat-related charity, including TinyKittens. Support in this case is not donating or volunteering.	<i>I go to my local cat cafe weekly in order to support my local cat rescue organization.</i>
Volunteering	The mention of a community member volunteering for a cat-related charity, including TinyKittens.	<i>I started volunteering at the humane society last week.</i>

A.4 Emotion Codes

Emotion Codes are to be used whenever a community member, including Shelly, explicitly or implicitly expresses an emotion. Code the entire sentence in which the emotion was expressed. One sentence can have more than one Emotion Code. Can be used for stickers, emojis, emoticons, and photos as well.

Table A4

Emotion Codes and Descriptions

Code	Description
Acceptance	

Code	Description
Admiration	Including appreciation.
Angry	Including hatred or rage.
Anxious	Including nervousness, worry, stress, panic, and concern.
Bored	
Calm	
Confident	
Curious	
Determined	Including courageous.
Disappointed	
Disgusted	
Excited	Including anticipation and expectation.
Frustrated	Including annoyance.
Guilty	Including shame.
Happy	Including joy, gladness, elation, and pleasure.
Helpless	
Hope	
Horried	Including disdain, indignation, despair, contempt, and painful.
Jealous	Including envy.
Love	
Pity	
Proud	
Regret	
Relief	
Sad	Including grief and sorrow.
Scared	Including intimidated, fearful, terrified, and distressed.
Surprise	Including astonishment, wonder, and amazement.
Sympathy	
Trust	

Note: Specific descriptions and examples would be repetitive and somewhat obvious, so have not been included.

A.5 Values Codes

Values Codes are to be used for statements in which a community member, including Shelly, states something they feel is important, is the way they think or feel about

something, or is something they hold to be the truth. Code the entire sentence in which the value, attitude, or belief is stated.

Table A5

Values Codes, Descriptions, and Examples

Code	Description	Examples
Value	Used when a community member attributes importance to something. This can include something that is, or appears to be, a principle or standard for that person. Can be implicit or explicit.	Explicit: <i>This is why TNR is so important.</i> Implicit: <i>TNR is the best way to reduce cat overpopulation.</i>
Attitude	Used when a community member states how they think or feel about something or provide an opinion. This can include a statement that is, or appears to be, the member's opinion on the way something should be done. Can be implicit or explicit.	Explicit: <i>I think my local cat rescue does [something] perfectly.</i> Implicit: <i>Animal rescue groups are awesome.</i>
Belief	Used when a community member states something that they believe to be true or is the truth. This can include something that demonstrates that member's identify—who they are and how they live their life. Can be implicit or explicit.	Explicit: <i>This is who I am.</i> Implicit: <i>Adopting a pet is a life-long commitment.</i>

A.6 Domain and Taxonomic Codes

Domain and Taxonomic Codes are to be used for any and all terms that are unique to the TinyKittens online community. Only the specific term or phrase needs to be coded. Only one code is to be used, 'Folk Term.'

Appendix B TinyKittens & Chat Terminology

This appendix shows an edited ²⁷list of terms posted to the TinyKittens Unite Facebook page. The attached list was downloaded on February 4, 2019. As it is a collaborative document within the community, it is updated regularly.



TinyKittens and Chat Terminology

- AMOS -- A Moment of Silence when everyone stops chatting so that unicorns (troll) can be banned from chat. The purpose is so Shelly can "grab" the username and ban the troll. If she's not watching then AMOS will not work. Then you go to "do not engage. do not discuss."
- Baff -- Bath
- Beans -- The pads of a cat's feet.
- Belleh -- Belly, the soft underparts of a cat or kitten. Very tempting for humans, possibly a trap.
- Belleh Vision -- Watching a baby bump move. #bellehvision
- Birthing Chicken -- A small toy who probably is a chicken and who watches over the mama cats in the nest, real name is Bart.
- Birthing Spider -- A real spider that first appeared with Evolene and Corsica. #birthingspider
- Biscuits -- When a cat or kitten makes a kneading motion with their paws. Kittens use it to make mama's milk flow. In later life, it is a sign of contentment for the cat. You will probably be reaching for the antiseptic.
- Blep -- Tongue sticking out a little, not to be confused with Derp.
- Butt Spear -- Thermometer
- Cam Takedown -- When the camera mysteriously falls over.
- Castle -- Inner cardboard packaging from a vacuum cleaner.
- Catitude -- Cat + attitude.
- Catermelon -- A pregnant mama kitty with a really big belly. Phrase coined from Sisko.
- CC -- Closed Caption, used for those with trouble hearing, one chatter will type what is said on screen IN CAPS. SHOULD BE THE ONLY PERSON USING CAPS. When we have a fuller house, please try to respect CC readers and slow down the oohs, aahs, and lols until later. (Kittehs will give us plenty of opportunity later).
- Chat Monster -- Invisible entity that eats your comments in chat.
- Chatters -- People that chat on Livestream or YouTube.
- Chickenwhale / Chickenfish -- Yellow and red toy which resembles both a fish and a comedy rubber chicken. The deity and guardian of foster kittens everywhere. Product link on Kool Kat & Hoomin Stuff file.
- COD -- Circle of Doom. Also known as buffering. Usually shows up when Livestream or YouTube is having trouble. Can sometimes be solved by lowering resolution.
- COS -- Cabinet of Solitude, also known as the nest.
- Crabpuff -- When a kitten arches its back to look as big as possible, then walks sideways on tip-toe and when the fur stands on end, making the kitten resemble a toilet brush with eyes. Usually happens when a kitten is startled, or when Eep met Topper.
- Crabwalk -- When a kitten arches its back to look as big as possible, then walks sideways on tip-toe. Very scary. Usually happens when a kitten is startled, or when Eep met Topper.

27. Edited means that I have removed URLs and names. I have also reformatted the list to fit on fewer pages and I have corrected spelling and grammar.

- Cutting Onions -- Expression used when we have a wonderful moment that makes us tear up. Usually caused by Onion Ninjas.
- Derp -- Tongue sticking out a lot, not to be confused with blep.
- Digging to China -- When cats bury in the litterbox..... for a long time.
- Dr. F -- Dr. Ferguson #bestvetever
- Dr. H -- Dr. Henderson
- DVR -- When we have to go back on the live feed.
- Field Trip -- A trip out of the room, sometimes off cam. Some field trips are to Shelly's house.
- Flatapuss -- Cat with flattened ears and a sour puss face. When a kitten is trying to look fierce. Mastered by Cassidy.
- Floofy -- Fluffy + poofy
- Floor Time -- Time away from the nest that Shelly gives kittens so that they can explore.
- Furever -- Forever
- Glamping -- Glamour + camping. Usually done in the mini tents.
- Goatrage -- When an opinionated kitten or mama vocalizes their opinion. Made famous by Skipper.
- Grooting -- Acting in a ridiculous manner, especially while sleeping (belly up, spread out, and in a contortionist position).
- Gushy Food -- Soft food from a can.
- Hangry -- Hungry + angry.
- Happy Forest (HF) -- Feeding station where Shelly and volunteers care for the cats.
- Hail -- Salutation given to those that have done something amazing. The correct form of greeting when Chickenfish appears. Also Dr Ferguson.
- Helicopter Tail -- When a kitten gets so excited at the milkbar that his tail spins round.
- Hoomin -- Human
- ISO -- Isolation, usually used in conjunction with ringworm issues.
- Kicker -- Stuffed toy with a long stuffed piece and ribbons at the end.
- Kitteh -- Kitten
- Kitten Huffing -- Snuggling a kitten belly with the face and breathing in deeply, not to be confused with snorgling.
- KST -- Kitten Standard Time, also known as Pacific Standard Time.
- LAPS -- Langley Animal Protection Society
- Ledge of Denial -- Window ledge where mamas deny everything. Made famous by Sisko.
- Mai -- My
- Meezer -- Siamese with an attitude.
- Meowmy -- Meow + mommy. Human furever mommy.
- Milkbar -- Lots of nipples, and the be-all-and-end-all of a Tinykitten's existence for the first couple of weeks of life.
- Mountain View -- Mountain View Veterinary Hospital
- Muzzlepuff -- White muzzle. Phrase coined from Cassidy. #miraclekitten
- Nano Effect -- Not Another Night Out #thenanoeffect
- Office -- The circle on the cat tree. Made famous by Professor Marvel.
- Onion Ninjas -- Sneaky ninjas that cut onions and make us tear up.
- Pawsitive -- Positive
- Pearl Clutching -- When chatters have a worrying moment and clutch their pearls.
- Pearl the Cockroach -- Plastic cockroach that was not small and caused people to immediately reach for their pearls.
- PIP -- Picture In Picture
- Poonado -- Soft squishy poop.... everywhere.
- Poot -- Fart
- Potty -- When mama cat licks her kittens' bums to stimulate peeing and pooping.
- Potty Woe -- When a kitten first starts to use the litter box, the unfamiliar sensation causes the kitten to woe.

- Property Owner (PO) -- Amazing man that owns a farm and has brought quite a few kittens to Shelly. This includes Cassidy, Topper, Jingle (Jack), and Holly Belle.
- Pudge -- Kitten fat
- Pudgeblossom -- A satisfyingly round kitten.
- Purrito -- When a kitten is swathed in a blanket so only the head is visible, for bottle feeding purposes. And of course they purr.
- Ratty -- Stuffed rat toy.
- Reset -- When the live feed resets. Sometimes saved to Event Posts.
- Ringworm (RW) -- A fungus, not a worm. It is zoonotic, meaning it is highly contagious to humans, cats, and dogs. Ringworm spores can survive in your carpeting or house for 18+ months.
- Rainbow Bridge -- Cat and kitten heaven.
- Shelly-coptered -- When Shelly takes a kitten with her.
- Shepherd Moose -- A small stuffed toy, who may not be a moose, but who watches over the Tinykittens when they are in the nest. Part of the TKCP logo made by Shepherd Moose arrived during the Firefly litter. We were awaiting new kittens and Shepherd Moose sat on a toilet roll in front of a board with Shelly's catchphrase "Something floofy...." on it.
- Sky Raisin -- Fly
- Skritchies -- Lots of love scratches particularly around the chin and cheeks.
- Snarfle -- When the kitty has a stuffy nose due to an URI. May cause funny noises and snoring.
- Snorgling -- Snuggling a kitten belly with the face and moving the head around slightly, not to be confused with kitten huffing.
- Speuter -- Spay + neuter
- Spigot -- A nipple
- Sploot -- Splits + oops. Back legs kind of do the splits.
- Snuggler -- Amazing volunteers that come and socialize the kittens.
- Squeeeeeee! -- Half squeal, half weeee sound that escapes hoomin lips with big excitement upon seeing a cat/kitten being extraordinarily cute.
- Teens -- Shelly's cats Barty, Bunny, and Pants.
- Telekat -- Apple app that is cat TV.
- Tiny Suitcases -- Specific time during which Shelly packs up the kittens toys, blankets, etc. in preparation to go to their forever home. Times are usually announced on Tinykittens FB.
- Tiny Village -- The Tinykittens community as a whole. #tinyvillage
- TKCP -- Tinykittens Cat Pack
- TKHQ -- Tinykittens Headquarters
- TKU -- TinyKittens Unite group, used as a place to fundraise for Tinykittens.
- Toebeans -- The pads of a cat's feet.
- TS -- Timestamp on live video stream.
- TSO -- Tongue Sticking Out
- Tweezer -- Twin meezers
- Twinger -- Twin gingers
- Unicorn -- Chat troll, do not engage. If mods or Shelly are on and watching chat, please AMOS.
- URI -- Upper respiratory infection
- Wedge of Glory -- Coined by Shelly for Chloe who loved to wedge herself behind the birthing cabinet. Unlike the Ledge of Denial where previous Moms in waiting teetered on the window ledge.
- Whappy paws -- A kitten slap-fight, often for possession of a chocolate spigot at the milkbar.
- Woe -- When kittens and cats are having a dramatic moment and vocalize.
- Woecabulary -- When the woe needs a detailed explanation.
- Wrasslin -- Wrestling
- Wubba -- Stuffed toy that usually has a ball on top and what looks like octopus legs on the bottom.