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An Analysis of Parenting from Online Confessions

Renita Murimi

Oklahoma Baptist University

Email: [renita.murimi@okbu.edu](mailto:renita.murimi@okbu.edu)

Dylan Bales

Oklahoma Baptist University

Email: [dylan.bales@okbu.edu](mailto:dylan.bales@okbu.edu)**ABSTRACT**

Anonymous networks offer unique environments for emotion-expression. In this work, we study the expression of emotion in the Scary Mommy Confessional, an anonymous message board, where parents (mostly mothers) post anonymous comments about motherhood, and family life in general. This paper explores how the intensity of sentiment in a confession evokes specific reactions from the readers. Results show that three effects are at work: (1) Ancient Mariner effect: tendency to disclose more intimate information to strangers, (2) Dark Side: tendency to disclose information that has more negative sentiment and (3) Emotional contagion: tendency to be influenced by the emotions.

**KEYWORDS:** Anonymous social networks, Ancient mariner effect, Emotional contagion, and Online Parenting.

**INTRODUCTION**

Anonymous networks have been prized for the freedom of expression. In anonymous networks, people can express their thoughts without having to consider the norms of social exchange. For example, before posting content on a profile-centric network such as Facebook, users might think about the possible reactions that the post will elicit. These reactions span the gamut of social exchange. On the positive side, the comment might be well-liked as indicated by the Like and Love buttons or it might warrant significant discussion through threads of comments that affirm or encourage the poster of the comment. On the negative side, the user risks not receiving any feedback, receiving hostile comments, or having the comment reported as inappropriate, and in general degrades the online network reputation of the user. In addition to impacting the online network reputation, posted content and the reactions that it elicits also impact the offline reputation of the individual. While the theory of social exchange in (Meeker, 1978) was developed for traditional offline social networks, work done in (Moore & McElroy, 2012; Murimi, 2016; Wasko & Faraj, 2005) shows that people's behavior on social networking websites is an extension of their behavior in offline social networks. One reason attributed for this extension of personality and behavior is that social networking sites (SNSs) may contain identifying information about the user. Content posted on SNSs such as Facebook and Twitter can be linked to an account and its associated profile due to the profile-centric design of the user experience. However, there exist other SNSs where various parts of a user's profile information are optional, thus creating a range of SNSs that lie on the spectrum of anonymity. Multiple other levels of anonymity have resulted in pseudo-anonymous SNSs where users can choose the level of self-disclosure, and hence their adherence to social norms, by using different SNSs for specific applications. In (Leavitt, 2010), the

author found that lower perceived anonymity on Reddit was a strong motivation for using “throwaway accounts”. In other work on anonymity and self-disclosure, the authors in (Ellison et al, 2016) showed that selective anonymity allowed on Ask.fm was conducive toward critical development goals in adolescents. Research in (Suler, 2004) has coined this effect as the online disinhibition effect, where the anonymous nature of online communications has been shown to allow people to “feel less vulnerable about self-disclosure and acting out”.

In this paper, we study the effect of anonymity on the nature of comments posted on the Scary Mommy Confessional, an anonymous message board, where readers post their comments called “confessions” about motherhood and family life in general. Using a dataset of roughly half a million confessions, we studied patterns in the sentiment of comments, distributions of various reactions, and emotional contagion. These patterns point to the tendency to utilize anonymity to “speak one’s mind”, and our results show that in the Scary Mommy Confessional, confessions are primarily negative in sentiment, more intimate and cause emotional contagion. Our findings about anonymous confessions provide a rich platform for investigation into the online lives of mothers, unfettered by the norms of face-to-face parenting and social exchange, thus creating a cultural snapshot of the life of an online mother in the age of anonymous SNSs.

## RELATED WORK

While no work has yet analyzed the Scary Mommy Confessional, substantial research has been conducted into the use of SNSs by pregnant women, new mothers and motherhood in general (Balaam et al, 2013). Some specific expectations of these subgroups of users include gathering information about pregnancy (Hui, Ly & Neustadter, 2012), childbirth (Choudhury, Counts & Horvitz, 2013) and concerns of new mothers (Gibson & Hanson, 2013) keeping in touch with friends and family after the birth of a baby through updates of pictures and baby milestones (Jomhari, Gonzalez, Kurniawan, 2009), parenting advice, tracking milestones in a baby’s growth and blogging about parenthood (McDaniel, Coyne & Holmes, 2012; Morris, 2014; Schoenebeck, 2013). The use of SNSs by fathers and their parenting methods – blogging, posting pictures and sharing information about children - was analyzed in (Kumar & Schoenebeck, 2015). In (Correa et al 2015), the authors analyzed the content posted on Whisper, an anonymous network, where users anonymously post content called “whispers”. Whispers were compared to the content on Twitter, a non-anonymous site. The authors found that Whispers were more personal, social and informal than tweets, exhibited more negative sentiment and expressed more wants, needs and wishes than tweets. Another study on Whisper was conducted in (Wang et al, 2014) where the authors study interaction and the absence of persistent social links in anonymous networks. Similar to the work in (Correa et al 2015), the authors found that Whisper users posted highly personal content. This theme was further explored in (Andalibi, Ozturk & Forte, 2017), where the authors conducted an online experiment to study the relationship between content intimacy and willingness to self-disclose in social media. They found a negative relationship between these two factors and showed intimacy of content increased with the level of anonymity. They also found that people were more willing to share intimate content with weak ties such as online friends, than with people nearby. This finding points to the increased support that people find on online networks when dealing with intimate content. The authors in (Ma, Hancock & Naaman, 2016) studied image-based sharing to investigate the role of self-disclosure in the expression of depression-related thoughts. Another finding is that positive sentiment is more common than negative sentiment on profile-centric networks, whereas anonymity allows for more comments with negative valence. In (Ma & Kizilcec, 2014), the authors found that when offered a choice of a sharing platform for content sharing, users preferred anonymity for controversial content.

People’s willingness to disclose more intimate content with strangers has long been documented and analyzed from the perspective of social sciences. In psychology literature, the tendency to increase self-disclosure with increase in anonymity is also known as the passing stranger effect,

or the ancient mariner effect, after the poem *The Rime of the Ancient Mariner* written by English poet Samuel Taylor Coleridge (Coleridge & Pato, 1863). In this poem, the ancient mariner willingly recounts to a wedding guest repeatedly his horrific tale of a journey gone awry. Implications of the passing stranger effect have been studied in terms of self-disclosure through writing messages in (Rubin, 1975), where the subjects wrote longer messages to strangers. The passing stranger effect was also observed in (Rubin, 1974), where development of intimacy in relationships with passing strangers was analyzed. Stranger support was also studied in (Cauce, Felner & Primavera, 1982) through the framework of social support to improve personal well-being by seeking intervention from strangers (for example, doctors and therapists). Our work differs from previous explorations of anonymous parenting behavior in that it analyzes anonymous user reactions to the confessions, thus providing an additional layer of interaction in complete anonymity.

## METHOD

Our work in this paper deals with the Scary Mommy Confessional (Scary Mommy Confessional at <http://www.scarymommy.com/confessions/>) which is an anonymous message board where visitors to the site may anonymously post a comment called a confession, limited to 255 characters in length. Visitors to the Confessional can view all the confessions and have three ways to interact with the confessions. Similar to a Facebook Like and the broad spectrum of Facebook Reactions, the Scary Mommy Confessional allows a user to click once on one or more of the following options beneath every comment: Hugs, Likes, Me Too!. These one-click tools for interaction, called paralinguistic digital affordances, in (Scary Mommy Confessional, 2017) refer to the quick, easy modes of communication on SNSs. On the Scary Mommy Confessional, each click on a Hug, Like or Me Too! increments the current number of Hug, Like or Me Too! and is displayed inside parentheses.

## Dataset

All of the confessions posted on the Scary Mommy website were crawled over a six-month period using Python from November 2016 to April 2017. The Scary Mommy Confessional has pages, each containing 10 confessions, and their corresponding numbers of Hugs, Likes and Me Too! reactions. of March 2017, there are little over 49,000 pages of confessions on the Confessional. However, the Scary Mommy Confessional does not have an API, and while it keeps all confessions on the site, it does not keep the number of Hugs, Likes and Me Too! reactions for the older confessions. Thus, older confessions have all zeros for the Hugs, Likes and Me Too! reactions. We found that the site deletes the number of reactions around page 600, and so we only chose the newer confessions on the Confessional. Thus, while our historical data set contains roughly half a million comments, our usable data set consists of confessions from pages from 1 (most recent) to around page 600, after which the site no longer retains the numbers of Hugs, Likes or Me Too! reactions on any confession. The dataset reveals interesting findings about relationships. Mentions of the dear husband (DH) are collectively more (63%) than all other categories, i.e. dear son (DS), dear daughter (DD) and dear child (DC) categories combined. We also found the frequency distribution of ages across gender in the confessions. The most common age of sons is 10 years, and that of daughters is 17 years.

## Sentiment Analysis Tools

We used the VADER sentiment analysis tools developed in (Hutto & Gilbert, 2016) to obtain the polarity of each confession. VADER, which stands for Valence Aware Dictionary for sEntiment Reasoning, is a parsimonious rule-based model that assesses the sentiment of content and is well-suited for micro-blog contexts like tweets and short comments. VADER works by extracting

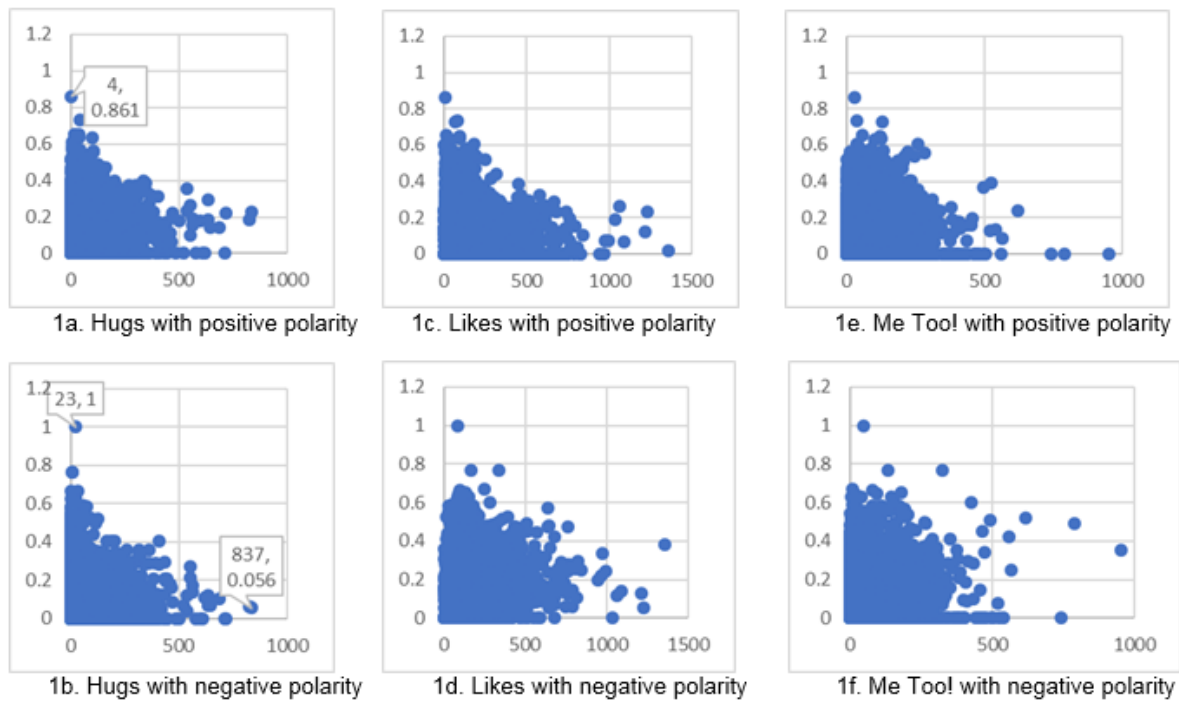


Figure 1. Distribution of the Hug, Like, Me Too! reactions as a function of the positive and negative polarity of confessions

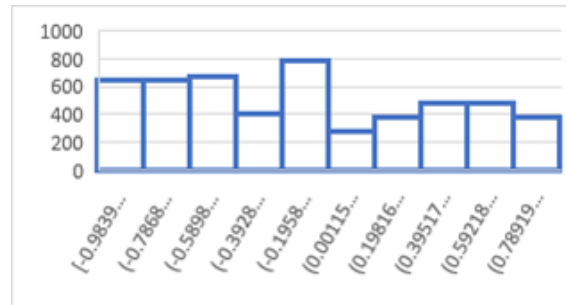
the intensity of sentiment through a polarity score that ranges from -1 (most negative) to +1 (most positive). The VADER dictionary of lexical features is particularly well-suited to analyze social media content, such as Scary Mommy confessions, due to its attention to (a) emoticons such as :-), (b) sentiment-related acronyms such as LOL (c) Internet slang such as “nah” and “meh” (d) punctuation marks (multiple exclamation points used to denote intense emotion) and (f) capitalization to signal intense emotion. For example, compare, “The food here is great” with “The food here is GREAT!” or “The food here is great!!!”.

VADER also accounts for modification of inferred sentiment polarity scores found in statements such as “The food here is great, but the service is slow”, where the word “but” reduces the intensity of the overall sentiment. In the next section, we show the distribution of the sentiment intensity in the confessions across the numbers of Hugs, Likes and Me Too! reactions garnered by a confession using VADER.

## FINDINGS

Figure 1 shows the distribution of the Hugs and their corresponding positive polarity (Figure 1a) and negative polarity for the confessions (Figure 1b). We see that majority of comments receive less than 450 Hugs, and as the number of Hugs increases, the polarity reduces. The same is true for confessions that receive few Hugs. The highest positive polarity of 0.86 had 4 Hugs. This shows that extreme polarity of sentiment (positive or negative) in the confession was not well-received and did not garner many Hugs. At the same time, confessions that were less positive in sentiment (< 0.5 polarity) elicited maximum Hug response from the confessional readers. A similar effect was observed for the distribution of Hugs with the negative polarity of confessions. The highest polarity of negative sentiment received 23 Hugs, and the confessions receiving the most

Figure 2: Distribution of confession polarity



Hugs (837) had a polarity of 0.05. The maximum Hug response was received for confessions whose polarity was less than 0.4.

We also compare the distribution of Likes, Hugs and Me Too! reactions with the positive and negative polarity of confessions. We see that Likes (Figure 1c, 1d) are the most common reaction, followed by Hugs (Figure 1a, 1b) and Me Too! (Figure 1e, 1f). It should be noted that the Scary Mommy Confessional does not use icons to offer the three reactions and relies on buttons labeled with reaction names. In (Levordashka, Utz and Ambros, 2016), the authors analyzed the motivations of users who clicked the Like button on Facebook and grouped these motivations into categories based on content of the post, acknowledgement, social support and utilitarian responses. Other factors were to acknowledge the source of the post and maintain/strengthen the relationship with the poster. However, unlike (Levordashka, Utz and Ambros, 2016), due to the anonymous environment of the confessions, these other factors have no impact on the motivations of the readers, and hence content of the confession is the primary motivator of the types of reactions it garners. Me Too!, however, is more specific, and conjures images of the reader being in the exact same situation, and hence is not as popular as the Like or the Hug on the Confessional.

### Patterns in Anonymous Confessions

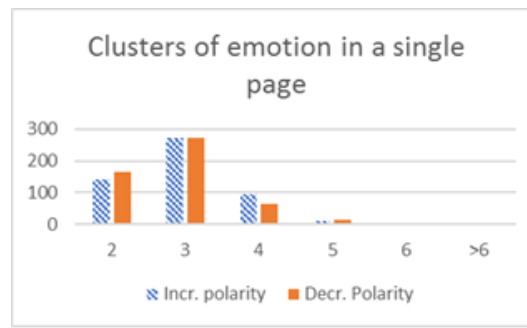
Figure 2 shows the distribution of the compound polarity score of a comment. The compound score is a function of the positive, neutral and negative polarity and lies within the range of -1 to +1. We see that, in general, the confessions tend to be more negative than positive and the highest number of confessions bear polarities that lie in the range of -0.24 to 0.001. Table 1 shows salient statistics of our data set.

### Emotional Contagion

Our results in the previous section point to the tendency toward generally negative polarity confessions on Scary Mommy. In this section, we study whether the polarity of confessions on a page affects the polarity of new confessions. For example, if the most recent confession contains mostly negative sentiment, does that influence the intensity of sentiment of an upcoming confession? The phenomenon is widely known as “emotional contagion” (Hatfield, Cacioppo & Rapson, 1962; Schoenewolf, 1984) and has been analyzed for its impact on work dynamics (Barsade, 2002), social networks (Kramer, Guillory & Hancock, 2014), and encounter satisfaction (Pugh, 2001). In (Pugh, 2001), the authors found that emotional contagion can be affected by without direct interaction and occurs even in the absence of verbal cues. This study which was performed on Facebook, by exposing users to the emotions of their friends in their News Feed, found that emotions expressed in online social networks impacted one’s own posts. Our analysis

Table 1: Key Statistics of Scary Mommy Confessions	
Feature	Average
Hugs	53
Likes	125
Me Too!	53
Compound Score	-0.08
Confession length	28 words

Figure 3: Distribution of confession polarity in clusters



of the Scary Mommy confessions found a similar pattern. We found that emotional contagion existed in clusters. That is, sentiment of the previous confessions had the greatest impact on the sentiment of a new confession. Thus, if the previous two confessions were increasingly negative or increasingly positive, the upcoming confession had an increasingly positive or negative polarity as well.

Figure 3 shows the clusters of emotion encountered in the Scary Mommy confessions. We see that the largest cluster of emotion occurs for clusters of size 3, followed by clusters of size 4. Thus, confession-posters are heavily influenced by the emotion (positive or negative) expressed in the previous two (cluster of size 3) or previous three (cluster of size 4). Thus, looking at a cluster of size 3, if the previous two confessions had polarities of 0.2 and 0.4 respectively, the next confession had a higher probability of having a polarity that was  $> 0.4$ . Our study affirms the emotion contagion theory for the case of anonymous SNSs.

## DISCUSSION

This paper provides an overview of interaction mechanisms and their implications on the Scary Mommy Confessional, an anonymous message board that caters to parents, mostly mothers. The study shows how the content of the comment evokes specific reactions from the site's affordances for interaction with the confessions. Our study found that the confessions had a mostly negative sentiment, inspired emotional contagion and were intimate disclosures about parenting, motherhood and family life, in general. We also found that of the three affordances – Hug, Like and Me Too! – the Like was the most commonly used affordance. The Hug and Me Too! affordances are unique to the Scary Mommy Confessional and offer an exclusive one-click tool to model empathy and compassion in a digital framework. The anonymity of the Scary Mommy Confessional ensures that the empathy, compassion and enthusiasm for a confession is

motivated solely by the content, since there is no subliminal motivator such as the maintenance of social ties, a concept seen frequently in profile-centric SNSs such as Facebook, Twitter or LinkedIn (Hayes, Carr and Wohn, 2016). However, further research is needed to understand the implications of affordances on SNSs that are used to convey human emotion. Does a Hug on the Confessional trigger the same benefits as a hug in offline social networks? SNSs offer the benefit of receiving empathy, compassion and enthusiasm, and other emotions that lie on the spectrum of positive and negative psychology, from both strangers and friends. In an anonymous setting such as the Scary Mommy Confessional, a click on any of the three affordances in response to a confession is an endorsement of the confession from a stranger. Does it imply, then, that we are open to receiving empathy, compassion and enthusiasm from complete strangers even in offline social networks? Online disinhibition (Suler, 2004) is a significant factor in this disparate behavior online and offline, and further work needs to be done to determine why we welcome attention from strangers in certain SNSs and are averse to friend requests and profile views from strangers in other SNSs.

Scary Mommy caters to an exclusive demographic: pregnant women, new mothers and mothers of young children. The content of a confession does not require the writer to provide gender information, yet it is generally assumed that most confessions were written by female users. In certain instances, the confession is written with clear phrasing indicating that the writer is a male. The content on sites such as Scary Mommy and our perception of the confessions reveals that our own assumptions about gender roles may have significant implications on our online behavior. For example, the name “Scary Mommy” implies the existence of a forum for mothers, but would fathers be comfortable using the Confessional to seek support and validation about their parenting challenges in an anonymous forum? Research addressing questions such as these will help us understand the gender disparity in the use of technology for niche applications.

## CONCLUSIONS

This paper offered an analysis of reactions to anonymous confessions about motherhood, and family life in general on the Scary Mommy Confessional, an anonymous message board. The Confessional offers three ways for readers to interact with a confession, by clicking on buttons labeled Like, Hug or Me Too!. We found that Likes were the most popular reaction, and overall the confessions veered more toward negative sentiment. Extreme intensity of sentiment (highly positive or negative polarity) were eschewed in favor of moderate sentiment value. We also found that the content of the confessions frequently contained intimate content, displaying the Ancient Mariner (passing stranger) effect, where people willingly disclose intimate content to strangers. Emotional contagion was also observed, where the intensity of sentiment affected the sentiment of new confessions and created clusters of emotion with similar sentiment. Among future directions, we hope to understand expression of various emotions in both non-anonymous and anonymous social networks for various niche demographics to better understand user behavior online. Our findings shed further light on anonymity-induced online behaviors of mothers and have potential implications in the design of anonymous networks featuring user interactions for various network demographics.

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