

EMOTION DETECTION AND RECOGNITION OF EMOJI AND TEXT USED IN CUSTOMERS' FEEDBACK: STRATEGY VIA FACEBOOK ADVERTISING FOR MICRO BUSINESS

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ABSTRACT

Several researchers have examined and explored the emotions of individuals with how they communicate through text, however, as years pass by, communication style changes, emojis have been adapted. Analysis of emotions through emojis still needs to be accomplished.. The study focused only on the selected micro-businesses in Balanga City, Bataan from the Facebook page: Balanga City Market Place (n = 357). Data were analyzed using descriptive statistics such as mean and percentage. This quantitative study adopts the principles of Paul Ekman's six basic emotions which are happiness, sadness, anger, fear, disgust, and surprise. This research aimed to help micro-businesses in formulating a refined existing technique to promote their products effectively based on the emotions of their customers' feedback that the researchers analyzed. It is determined that the emotions expressed by the customers through their feedback, with the use of text and emojis, may be exploited as a new approach for micro-businesses to promote their brand. Particularly, in online advertising and customer feedback marketing. These analyzed emotions of consumers' feedback may benefit microbusinesses in terms of customer satisfaction, promotion, brand image, and decision-making which they may utilize to optimize operations that address the concern of the customer by considering the conveyed emotion from their feedback.

Keywords: *emotions, Emoji, Customers' Feedback*

INTRODUCTION

The need for people to connect with one another has resulted in a shift in communication styles and methods. With the advent of the internet, computer-oriented communication and cell phones, businesses began to communicate with their customers through numerous channels. Tweets, social media posts, and e-commerce site evaluations have all made it easier for businesses to engage with their customers. Social media's essential essence, which is to give a venue for customers to swiftly engage with and

influence one another, has a more direct impact on brand communities (Wang & Kim, 2017).

The most essential thing for businesses to focus on is their consumers' feedback. Customer feedback aids organizations in product development, marketing, operations, and much more. It also helps the businesses to fully understand their customer's requirements to innovate and build a loyal customer base. Understanding client emotions, according to Davey (2020), has historically helped businesses to provide empathy and

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more memorable experiences at critical stages during the consumers' decision-making process, eventually resulting in trust and loyalty. Businesses may use emotions to better grasp what their consumers are going through. Businesses may understand what it's like to be overwhelmed and irritated. These emotions may provide crucial information for corporations in determining how they should respond. That is why, businesses are necessitated to consider customers' emotions before making a decision. Regarding that, the researchers conducted this study. This study looked into the emotions of consumers in Balanga City, Bataan, through the usage of text and emojis in their feedback to micro-businesses.

In the modern world, communication is developed over time and makes it much easier to express what the person is trying to convey. Emoji has evolved into a universal language that blends seamlessly into daily digital communications, especially on mobile devices and social media. It demonstrates how nonverbal communication in interpersonal communication forms material and relational context, as well as how nonverbal communication is governed by rules and shaped by culture. Among the many emoji that convey, worry, or cover every aspect of life today, emoji have grown in popularity on the internet as a result of their rapid expansion. Emojis are a visual representation of a person's feelings. Emojis were designed to convey emotions symbolically. Emojis, like punctuation, are used to express emotion such as sarcasm or laughter, as well as to replace body language and voice tone in text-based communication (Atanasova, 2016).

As reported by Johnson, J. (2021), there were 4.66 billion active internet users worldwide. Facebook is the most frequently utilized social media network, according to Jolly, W. (2021). With roughly a quarter of the world's population using Facebook on a monthly basis, advertisers have an unprecedented opportunity to reach virtually everyone. According to the ASEAN UP (2018), the Philippines has one of the highest and most active Facebook populations, with about 60 million users. That is why the researchers have chosen this platform for their research.

In line with this, as examined by DTI statistics (2019), there are 99.5% or over 995,745 of MSMEs (Ministry of Micro, Small and Medium Enterprises) and there are only 4,761 (0.5%) large enterprises in the Philippines. Micro companies account for 89 percent (891,044) of total MSME institutions, with small businesses accounting for 10% (99,936) and medium businesses accounting for 0.5 percent (4,765). There are 429 businesses established in Bataan.

Therefore, the research focused on selected micro-businesses in Balanga City, Bataan. The researchers constructed a pre-survey questionnaire to specify the micro-businesses that should be studied. As a result, service, health/beauty products, food/drinks, consumables, and home were shown as the categories that the researchers will use as a basis in collecting data.

According to Lagunas, E. (2018), micro-businesses in the extractive, constructive, retail, transportation, and commercial sectors can have up to ten (10) employees, whereas micro-businesses in the manufacturing sector can have up to sixteen (16) employees.

There have been a lot of studies on emotion detection and recognition on different channels such as detecting emotion from speech, facial expression and text, Garcia et al., (2017), and emoji alone as a marketing tool, Mathews, S., & Lee, S. E. (2018). This research is significant because it exposed the emotions and explicit sentiments of customers' feedback and also detected their implicit sentiments.

With regards to this, the researchers claimed that knowing the customer's emotions may lead to building a deeper connection between the customers and the business. This research identified and analyzed the emotions of every customer towards the businesses' products and or services of micro-businesses in Balanga City, Bataan based on how they give feedback. The researchers used the social media Facebook as their platform for the reason that it has become a part of people's daily routine, according to Mohsin (2021). This research showed that there are deeper meanings beyond text and emoji which can be used by businesses in maintaining and attracting more customers.

RESEARCH METHODOLOGY

A quantitative method is used in this study to collect and gather quantitative information and analyze it using mathematically based methods to understand occurrences (Sukamolson, 2007). The researcher's aim is to describe a population, condition, or phenomenon in a systematic and accurate manner. According to Akhtar (2016), this sort of descriptive design is concerned with the things that can be examined and tallied, the descriptive method was utilized in this study to focus on understanding the emotion behind the text and emoji that consumers used in their feedback. Also, it

is a scientific method that involves observing and describing a subject's behavior without altering it in any way. As a result, the researcher will be able to explain and validate the hypotheses and its aims based on the findings of this investigation. Moreover, this study will be an advantage and beneficial to every micro business in Bataan that are now on an online platform specifically on Facebook to understand and have a deeper connection with their customers.

Respondents

Sample Population

The researchers utilized the number of members from the private Facebook page "Balanga City Marketplace" as their population which is 11,000 (Eleven Thousand).

Sampling Technique

The researchers used purposive sampling. The researchers used a sample size calculator for descriptive statistics to get the sample size of the study. They used the 95% confidence level, 5% margin of error, and 60% population proportion. The computation resulted in 357 as the sample size.

Formula used:

*Necessary Sample Size = (Z-score) 2 * StdDev*(1-StdDev) / (margin of error)2*

Z-score is determined using a z-score table.

- 90% – Z Score = 1.645
- 95% – Z Score = 1.96
- 99% – Z Score = 2.576

Inclusion Criteria

To become a valid respondent of the research, the researchers come up with a criterion of respondents where in the respondents must be: An online shopper or seller from Facebook, part of the private

group “Balanga City Marketplace”, residing inside Balanga, City Bataan, not under 18-year-old, and had bought or sold any of the following category of product from Facebook:

1. Service,
2. Food/ Drink,
3. Health/ Beauty,
4. Consumables, and
5. Home products.

Research Instrument

Data Collection Tools

Data is the basic unit in statistical study and there are many methods for interpreting the data which turn into useful information. The present study used primary data collection as a source of data. According to Victor (2017) it is original and exclusive information obtained directly from a source by the researcher, such as findings, surveys, questionnaires, case studies, and interviews, in accordance with the needs.

The researchers used survey questionnaire questions that were inspired from others studies. The researchers deployed the survey questionnaire online through Google forms.

Instrument Structure

The researchers used two (2) survey questionnaires. The first one is deployed to know what micro businesses the researchers will focus on, and those under the category of products that have the most frequency of buying among customers are the one chosen. After knowing under what category of products they should focus, the researchers formulated and enhanced some questionnaires from other studies.

The questionnaire was divided into 7 parts. The first part of the survey is about

the method of customers giving feedback. The second section was on Paul Ekman's six (6) basic emotions. The third part identifies the implicit sentiments of customers' feedback. The fourth part recognizes emoji and text as brand promotion. The fifth section or part was about business and customer relation, followed by questions about micro businesses in Balanga, City Bataan, and lastly, questions about determined emotions of customers as reference for future customers.

All of the questions have choices for the ease of completion of the respondents. The researchers used a four-point scale on each question.

Content Validity and Reliability Validity

The researchers used a survey questionnaire questions that were inspired from others studies such as: “Use of Emoji as a Marketing Tool: An Exploratory Content Analysis”, “E- Personality of the Young Indian Online Shopper: A Scale Validation” and “Integrity Consumer Feedback into Business Marketing Strategies”. Some of the questions were adopted and some were enhanced. The validity of the research instrument was checked by the research adviser.

Reliability

The reliability of the instrument was tested by the research statistician and based on the findings the Cronbach Alpha of 0.849 establishes an acceptable reliability.

Data Collection

The researchers constructed a pre-survey questionnaire to specify the micro businesses that should be studied. There

are 10 product categories; entertainment, service, food/drinks, fashion, health/beauty products, non-profit, automobile, technology, consumables and home products. The pre-survey questionnaire was given to the 30 random respondents who sell and/or buy through Facebook. As a result, service, health/beauty products, food/drinks, consumables, and home were shown as the categories that the researchers will use as a basis in collecting data. The survey questionnaire was given to the *Balanga City Marketplace* members, specifically to 357 members based on the sample size calculation, who were engaged with either of the five said categories.

RESEARCH FINDINGS AND DISCUSSION

This chapter presents the results of data collected in three-hundred-fifty-seven (357) respondents from the Balanga City Facebook marketplace. It is divided into seven (7) parts according to research objectives: method of customers giving feedback, Paul Ekman's six (6) basic emotions, implicit sentiments of customer's feedback, recognition of text and emoji as brand promotion, business and customer relations, results about micro businesses and determined customer's emotions as a future customer's reference.

Statistical Package for the Social Sciences (SPSS) was used to compute statistical analysis of the study. The researchers used four (4) point likert scale, because of its reduced bias, the conventional approach for analyzing four-point ordinal items ensures a more accurate selection of items for the final scale, resulting in more valid and reliable instruments, Asun et al (2016).

Part I displays how customers give feedback.

Table 1 shows the method how customers' give feedback.

Table 1. Customer's Feedback

Indicator	Mean	Standard Deviation	Descriptive Equivalent
1. I give feedback after purchasing a product.	3.13	.72	Sometimes
2. I give feedback using text after purchasing a product.	2.90	.86	Sometimes
3. I give feedback using emoji after purchasing a product.	2.76	.86	Sometimes
4. I give feedback using text and emoji after purchasing a product.	2.81	.83	Sometimes
5. I express my true emotion when giving feedback after I purchased a product.	3.47	.75	Always
GRAND MEAN	3.01	.60	Sometimes

Table 1 presents the result in customer feedback with the highest mean of 3.47 along with its standard deviation of .75 "I express my true emotion when giving feedback after I purchased a product." and the lowest mean of 2.76 and a standard deviation .86 "I give feedback using emoji after purchasing a product."

Moreover, the grand mean of 3.01 with standard deviation of .60 depicts that the customer sometimes provides feedback after purchase. According to Mahbub (2021), providing honest feedback eventually leads to criticism that gives meaningful insight into consumers' interests and opinions. This allows online sellers to enhance product quality or service in response to consumer needs.

Part II shows how the customers' feedback can be described in relation to Ekman's six (6) basic emotions: happiness, sadness, anger, fear, disgust and surprise.

Table 2 describes the expression of customers in giving feedback related to happiness emotion.

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Table 2. Happiness

Indicator	Mean	Standard Deviation	Descriptive Equivalent
	1. I give feedback when I feel happy with the product I have purchased.	3.52	.66
2. I give feedback when I like the product.	3.50	.66	Always
3. I give feedback when I am satisfied with the product.	3.55	.65	Always
4. I give feedback when I am amused with the product.	3.50	.64	Always
COMPOSITE MEAN	3.52	.59	Always

Table 2 indicate the result of Happiness with highest mean of 3.55 and standard deviation of 3.55 “I give feedback when I am satisfied with the product” and the lowest mean of 3.50 with standard deviation of .66 “I give feedback when I like the product” and “I give feedback when I am amused with the product”.

Furthermore, the composite means of 3.52 with standard deviation of .59 shows that the customers always give feedback when they feel happiness in the product they purchased.

Such quality difficulties like unsafe products can be prevented according to Marla (2021) with appropriate inventory management, timely deliveries, and keeping track of product expiration dates, as well as full order fulfilment with correct supervisory tools and processes supported by automated tools and machines. Attaining all of those will lessen the fear of buying in such company.

Table 3 illustrates the expression of customer in giving feedback related to Disgust emotion.

Table 3. Disgust

Indicator	Mean	Standard Deviation	Descriptive Equivalent
1. I give feedback when I feel disgusted with the product I have purchased.	2.70	1.00	Sometimes
2. I give feedback when the product I have purchased is contaminated.	2.92	1.03	Sometimes
3. I give feedback when the texture of the product is not the same as the dealings of the business.	2.94	.99	Sometimes
4. I give feedback when there is inconsistency to the quality of the product.	2.93	.98	Sometimes
COMPOSITE MEAN	2.87	.90	Sometimes

Table 3 illustrates the result of Disgust which describes the reason for giving feedback with the highest mean of 2.94 and standard deviation of .99 “I give feedback when the texture of the product is not same to the dealings of the business” and lowest mean of 2.70 with its standard deviation of 1.00 “I give feedback when I felt disgusted with the product I have purchased”

Additionally, the grand mean of 2.87 with standard deviation of .90 depicts that the customer sometimes provides feedback when they are disgusted with the product they have purchased. When shopping online, consumers are most concerned about product information, and misrepresentation of product information is one of the most common types of online fraud as stated in the study of Liu et.al (2020). Advertisements or websites that deceive users by omitting relevant product information or presenting false information about products, services, or businesses is the reason why customer feel disgust about ordering online.

Part III reveals the implicit sentiments of emojis on customers' feedback: Positive, neutral and negative.

Table 4 exposes the results on positive feedback from customers.

Table 4. Positive Feedback

Indicator	Mean	Standard Deviation	Descriptive Equivalent
1. I send my gratitude to the business towards the product/service I purchased.	3.46	.67	Always
2. I expressed happiness whenever I give feedback towards the product/service I purchased.	3.46	.69	Always
3. I show the satisfaction I felt in giving feedback towards the product/service I purchased.	3.50	.68	Always
4. I'm sending all my love and support to the business by giving feedback towards the product/service I purchased.	3.44	.69	Always
GRAND MEAN	3.47	.61	Always

As a result of positive feedback from customers, two same highest mean of 3.46 first with standard deviation of .67 “I send my gratitude to the business towards the product/service I purchased.” Second, with .69 standard deviation “I expressed happiness whenever I give feedback towards the product/service I purchased.” and the lowest mean of 3.44 “I’m sending all my love and support to the business by giving feedback towards the product/service I purchased.”

Whereas, the grand mean of 3.47 with standard deviation of .61 illuminates that the customers Always express their positive feelings in terms of giving their feedback towards the product they purchased and/or service accommodated. Zhang T. et al, (2018), customers often express the desire to respond positively to in-service experiences.

Table 5 shows the result on the neutral feedback of customers.

Table 5 Neutral feedback of customer

Indicators	Mean	Standard Deviation	Descriptive Equivalent
1. I put exclamation points in giving feedback towards the products/services I purchased.	2.88	.84	Sometimes
2. I am open-minded in giving feedback towards the products/service I purchased.	3.44	.66	Always
3. I'm fair in giving feedback towards the products/service I purchased.	3.51	.65	Always
4. I think twice in giving feedback towards the products/service I purchased.	3.41	.66	Always
GRAND MEAN	3.31	.55	Always

As a result of neutral feedback from customers, the highest mean of 3.51 with its standard deviation of .65 “I’m fair in giving feedback towards the products/service I purchased.” and the lowest mean of 2.88 as to its standard deviation of .84 “I put exclamation points in giving feedback towards the products/services I purchased.”

Moreover, the grand mean of 3.31 with standard deviation of .55 stated that the customers always show neutral emotions in terms of giving feedback which means they express whether positive or negative impact, emotions or feelings towards the business’ product and/or service. Negative reviews are more helpful when perceived by people, yet this helpfulness decreases when the emotional intensity is too extreme (Lee et al., 2017).

CONCLUSION

The main purpose of this study is to interpret the text and emoji on how the customers give feedback towards micro-businesses. The study focused only on the selected micro-businesses in Balanga City, Bataan. This research aimed at helping micro-businesses to formulate a refined existing technique for promoting their products effectively based on the emotions of customers’ feedback that the researchers analyzed.

It is important to choose a platform for studying emojis because many versions already exist on the web. It depicts that there is a strong possibility of cross-

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platform misinterpretation for a given emoji character, (Miller 2018). This present study chose Facebook as a specific platform to avoid any misconception in determining the emotion of customers by using emoji in their feedback.

By learning the meaning and emotions of customers' feedback, the researchers concluded that the emotions on the text and emojis of customers' feedback can be used as a new strategy for micro-businesses brand promotion. Specifically in terms of online advertising and feedback marketing. These emotions on customers' feedback can also help the micro-businesses in terms of its betterment, customer satisfaction, promotion, brand image, and decision making. Zorfast and Leemon, (2016), emotionally connected customers buy more of the business's products and services, visit more often, exhibit less price sensitivity, pay more attention to the communications, follow the recommendation of the firm, and recommend the business more.

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