

## Exploring emotions and sentiments in the Philippine esports industry: A mixed methods approach



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### ABSTRACT

The number of participants and viewers in esports is increasing, making it a rapidly growing industry worldwide. In the Philippines, esports elicit a variety of feelings and attitudes. This paper investigates these emotions and sentiments, specifically anger, anticipation, fear, disgust, sadness, joy, surprise, and both positive and negative feelings, using existing research studies and articles. The research adopts the Exploratory Sequential Mixed Methods approach, starting with gathering and analyzing qualitative data, followed by collecting and analyzing quantitative data, and finally, integrating the findings from both data types. The study employs data cleaning techniques such as tokenization, removing URLs, stop words, special characters, and hashtags. Additionally, it uses Latent Dirichlet Allocation (LDA) to explore different topics within journal articles, online news, and various issues related to esports in the Philippines. Opinion mining and sentiment analysis are techniques used to derive meaningful subjective information from text. The findings indicate that many Filipinos hold positive views, including trust, anticipation, joy, and surprise towards the burgeoning esports sector in the country. However, a small percentage of Filipinos still express anger, disgust, fear, sadness, and negative opinions about esports. The discussion on esports in the Philippines has evolved to acknowledge its growth as an industry, its increasing popularity as a sport, and its demands for mental and physical training, among other aspects.

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### 1. Introduction

The amount of scholarly research on organized, competitive gaming has expanded quickly in tandem with the increase in the popularity of esports (Zhouxiang, 2016). Between 2002 and March 2018, the field of esports research grew from nonexistent to a scholarly area spanning various disciplines (Reitman et al., 2020). The first professional video game tournaments were held in 1997 by the Cyber Athlete Professional League, but the history of competitive video gaming tournaments dates back to the 1970s at Stanford University, California, United States of America, using the game Spacewar, the very first interactive video game. These tournaments serve as the catalyst for the development of a professional electronic sports or esports culture (Pedraza-Ramirez et al., 2020).

The increasing acceptance and popularity of esports is here, regardless of how we feel about it. With the development of the internet and its infrastructure, its importance and fascination started to move up, especially with younger individuals (Papaloukas, 2018). In the recent past, gamers used to get together at Local Area Network (LAN) parties to play and compete in areas that are in a friendly setting. But with the advent of social media and streaming services, along with the growth of high-speed internet, that swiftly changed. As a result, professional and competitive gaming emerged. Esports, sometimes known as electronic sports, are professionally managed videogame contests where top players, sometimes known as pro gamers or pro players, compete for cash prizes and other esteemed accolades. In recent times, professional video game tournaments have witnessed a significant surge in popularity among participants from throughout the globe, known as esports. Esports' growth has been aided by the rising interest in video games and the development of online streaming platforms. Attendance at esports events surpasses that of traditional sporting events, and the competitions enjoy substantial global popularity.

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There have been hundreds of competitors from many continents in several well-known competitions. For instance, in Cologne, Germany, in 2008, there were about 800 players from 78 different countries competing in the World Cyber Games (WCG). This new wave of sports has also gained recognition as an enjoyable spectator activity (Lee and Schoenstedt, 2011). Esports involves professional players competing in organized multiplayer video games, either individually or in teams. These events can be broadcast live on television, streamed online, or held in front of a live audience. Similar to traditional sports, esports is accessible to everyone, but only those with specific skills are regarded as proficient. Players need high-intensity, finely-tuned motor skills, and quick, precise hand-eye coordination (Chung et al., 2019).

Various nations have become more interested in the phenomenon of electronic sports (Marelić and Vukušić, 2019). For instance, computer games were one of the choices for activities during free time for a lot of people, especially the younger generation (Eglesz et al., 2005). These games entertain young people and serve as stress relievers for a lot of people. Those in the 19–40 age range who are better educated, have moderate incomes, and are not White have had a quicker increase in video game playing over the past few years (Eglesz et al., 2005). In fact, in the United States, teachers have been attempting to make connections between the abilities acquired in esports and academic and professional options as esports gain popularity and acceptance. Due to its popularity among students and the requirement of reading for participation, schools have decided that esports is a topic appropriate for an integrated curriculum (Lee et al., 2020).

Esports take the world by storm. More than 200 million individuals took part in or watched esports in 2014. Video games became more and more popular, and so did the desire to watch gaming both in person and online as Internet-based gaming advanced. For instance, the most prominent esports competition, the 2016 League of Legends (LoL) World Championship, drew 21,000 live viewers and was shown in more than 15 languages by over 23 companies. It also brought in 47.7 million unique viewers, at its peak concurrent viewership of 14.7 million (Jenny et al., 2018). According to recent data, the esports sector brought in \$159.3 billion in revenue overall and increased by 9.3% annually in 2019 and 2020. This amount includes games for smartphones, consoles, PCs that have been downloaded or packaged, tabletop games, and PC games played through browsers. Consequently, accounting for 40% of the total esports market, the smartphone gaming sector is the most significant as well as addictive of all, ahead of console games (28%) and downloaded/boxed PC games (21%) (Saiz-Alvarez et al., 2021). Because everyone involved in the esports sector, at some level, needs to have some money to play, it is, therefore, more characteristic of rich countries than underdeveloped ones since esports participants, at varying degrees,

require a certain amount of money to participate (Saiz-Alvarez et al., 2021).

On the 18<sup>th</sup> of November 2003, China's State Sports General Administration officially recognized esports as one of the first 99 officially recognized sports. Esports is a new sports initiative that continuously improves people's lives, fitness, and enjoyment while also offering the Chinese digital sports industry a very favorable strategic opportunity. As a result, China's esports have truly entered a new phase of tremendous growth. China outstandingly exceeded the Land of Opportunity or the United States in 2015 to become the biggest gaming market internationally as of right now (Dongsheng et al., 2011).

The Korean diaspora introduced esports to the Philippines in 2003 with the release of a massively multiplayer online role-playing game (MMORPG) called Ragnarok Online (RO). This electronic game combines elements of online multiplayer gaming with role-playing. In the Philippines, RO was one of the first games to be sold (Achterbosch et al., 2008). As evidenced by the popularity of MMORPGs like RO, Filipino gamers have a tendency to favor games in which players collaborate (Ignacio, 2016).

In the Philippines, 25% of Filipino gamers in the country in 2019 were found to be students who played mobile video games in the school halls during their breaks (Barbon, 2021; Labana et al., 2020). Esports in the Philippines are met with different sentiments and emotions, which may be positive or negative in nature. Additionally, despite the fact that the proportion of male and female competitive gamers is almost equal, esports and competitive gaming in general continue to be seen as "male-dominated." Additionally, the masculine and feminine cultures within the gaming industry remained to have stereotypes, such as the idea that men are "aggressive" and "undesirable," while ladies "lack competitive attitude" at the same time "do not enjoy violence in games" (Madden et al., 2021).

From 2015 to the present, there have been several significant developments in the global gaming industry. One study conducted in the Philippines focused on the country's recognition of esports by Ignacio (2016). The researcher highlighted the history and evolution of esports and acknowledged the talent and potential of Filipino esports players. He concluded that many raw talents in the Philippines could excel internationally with proper support. However, while his study addressed the recognition of esports, it did not explore the sentiment of Filipinos towards esports, leaving a gap in knowledge.

In general, the esports research that has been done has not produced much information. This study looked at several research studies on esports, including those by Ignacio (2016) and Otu (2019) on the development of esports in the Philippines and China, respectively. The first author talked about the transition of games from arcades to the Internet. While his research focuses on the expansion of esports, the objective of the current study is to

examine the various attitudes and feelings around esports in the Philippines. Conversely, the second study concentrated on the pattern of esports' rise in China, which has led to the industry's current massive growth and status as the world's largest Esports market due to its high revenue generation. In addition, several articles examined were sourced from reputable and well-known Philippine news publications, including the Philippine Star, Manila Bulletin, Inquirer, Manila Standard, and Manila Times between 2016 and 2021.

This study reviewed multiple research studies and articles to determine the common issues and circumstances surrounding esports. Thus, discloses the general sentiments and emotions toward esports.

## 2. Research methods

### 2.1. Research design

The exploratory sequential mixed methods were used in this study, which generates and analyzes quantitative data first, then uses qualitative information and analysis to collect data before combining the two results in a final stage of data analysis (Berman, 2017). In order to support the study's objective, relational analysis was used to analyze content. The six (6) steps of this research are centered on developing topics, analyzing qualitative data, and gathering qualitative data from various sources.

The first step in exploratory sequential design is the gathering and analysis of qualitative data, then progresses to the gathering and analysis of quantitative data and concludes with interpretation. In this design, a new tool or taxonomy for the quantitative strand is developed using the qualitative data. This aids in identifying the quantitative results that require more explanation.

This method makes sense because it investigates the topic first before determining which variables should be measured. An exploratory sequential design can be compared to a template that is utilized in a particular research scenario, yet the application of this design may vary depending on the circumstances.

Considering the body of existing literature, the first thing to ask is what we already know. That is, for researchers who use this design, the starting point could be different. In circumstances where a review of the literature reveals few findings that can assist us, the qualitative stage may be beneficial in that it helps us identify a new dependent variable. In other words, the dependent variable may not be present even though the required demographic data and baseline measurements for the independent variables may already be there.

Qualitative analysis will, in general, assist us in identifying a wider variety of subjects and the ways in which people interpret a certain occurrence or phenomenon. The qualitative point is described as "exploratory," considering that it is driven by data

rather than by a conceptual framework (Creswell and Clark, 2017).

Esports are a relatively new phenomenon and a rapidly developing industry in the Philippines. Hence, the research employed exploratory sequential mixed methods, which call for a thorough investigation of the subject. A quantitative study on the perception and state of esports in the Philippines will yield quantitative results that will help interpret and explain the other findings.

## 2.2. Research process and data analysis

### 2.2.1. Data selection and scraping

The reliability of the data used for sentiment analysis and modeling must be taken into account when choosing the data. Sentiment analysis was used in text mining to treat opinions, sentiments, and subjectivity of the text (Medhat et al., 2014).

When choosing data for sentiment analysis and modeling, the reliability of the information gleaned from the internet must be taken into account. In social science studies, the internet is now considered a rich source of secondary data and literature. Accordingly, the legitimacy of the source may be a challenge for internet data collecting, which is a crucial concern in persuasive communication. With this issue, the researcher evaluated and tested the data collected by using information from the internet for research. Four criteria are introduced by Documentary Sources in Social Research in assessing secondary sources. The four criteria for evaluating secondary sources are authenticity, credibility, meaning, and representativeness. Handling documentary sources is essential and ought to be done in a systematic manner (Mogalakwe, 2009).

Here, the researcher selected the news articles and relevant web research studies based on the four variables. From 2016 to 2021, research studies on esports in the Philippines were consulted for the articles, which were sourced from reputable and well-known Philippine news publishing companies like Inquirer, Manila Bulletin, Manila Standard, Manila Times, and Philippine Star. Standard scraping techniques were used to extract relevant and superfluous information from the articles. In order to determine the public's opinions regarding the expanding esports business, the researchers lastly gathered conversations from articles titled esports in the Philippines or anything else that discusses the sport there.

### 2.2.2. Text preprocessing and cleaning

All text is a string of characters, or more accurately, a string of words. However, rather than focusing only on the character-level depth of our text data, we are more interested in the words as a whole when dealing with language modeling or natural language processing. Tokenization, removal of stop words, removal of URLs, removal of special

characters, and removal of hashtags are some of the basic data cleaning procedures provided by the existing systems. To help deliver high-quality data for sentiment analysis, the provided technique performs all necessary procedures plus adds extras like spell checking, stemming, and slang word replacement (Caluza, 2018; Medhat et al., 2014).

The extraction procedure or getting ideas from large-scale data or sources is called text mining; others call it Text-Data Mining (TDM) or Knowledge-Discovery in Textual Databases (KDT). When conducting or doing text-mining, preprocessing, and cleaning, text performs a crucial function (Elakiya and Rajkumar, 2017). Preprocessing in text-mining, Natural Language Processing (NLP), and information retrieval is a crucial function and vital step or task since this is the phase in which valuable data preprocessing is employed for extracting interesting, non-trivial, and knowledge from unstructured text data called text corpus. Pattern matching is the extraction of information from the text corpus. It is used to determine keywords and associations within the text in the preprocessing stage.

Pattern matching is adequate when dealing with a large amount of text. The preprocessing and cleaning stage performed in this research includes several methods. Firstly, the stop words-removal method identified a text or word that is not relevant to a query, which usually appears in a document. Examples of these texts or words are "is," "are," "you," and "me." In this investigation, term-based random sampling (TBRS) was employed.

Secondly, the method of stemming is utilized to identify the root/stem of a word. As an illustration, the word "connect" can be the root of the terms "connect," "connect," "connected," and "connections." Reducing the total number of unique terms in a document or query is the purpose behind stemming, as this will shorten the time it takes to process the output. Due to its language independence and wide range of applications, N-Gram Stemmer was used in this study. An N-gram is an N-character slice of a longer string that offers a straightforward and dependable method for classifying documents in a variety of classification applications (Mayfield and McNamee, 2003).

Thirdly, the term frequency-inverse document frequency is a statistic that reveals or shows how vital or important a word is to a document in the group (Christian et al., 2016). The TF-IDF is usually used as a weighting parameter or factor in information retrieval and text mining. The value of TF-IDF increases directly proportional to the number of appearances of a word in the text file but is also affected by the frequency of the word in the corpus. This is being used to the fact that some words are more common compared to others. Term Frequency (TF) is specified as the number of frequencies a term appears in a document (Azam and Yao, 2012; Caluza, 2018).

Finally, a term-document matrix, also called a document-term matrix, should be constructed or

coerced as a result of utilizing the R programming language.

### 2.2.3. Topic modeling using unsupervised learning

This study utilized the Latent Dirichlet Allocation (LDA) to analyze the topics of journals and news articles online and explore the different topics and issues relating to esports in the Philippines.

Identifying positive, negative, and neutral sentiments is only the initial step toward a deeper understanding of sentiment. By analyzing word patterns in a text corpus, it is possible to uncover hidden themes or topics in various forms of writing, such as discussions, posts, comments, and articles. In data mining, an unsupervised machine learning technique called "topic modeling" can be employed to reveal these themes or topics. Topic modeling algorithms are extensively used to analyze the thematic structure of a text collection, which is typically challenging to interpret and organize. The LDA algorithm is a commonly used technique in topic modeling to identify human-readable topics or themes in unstructured textual data.

Considering the technical requirements of text analysis, this research utilized LDA to examine topics in online news articles and explore various issues related to esports in the Philippines. LDA, based on the "bag of words" concept, represents a document as a mix of potential topics, each having a multinomial distribution over multiple words. Each document contains proportions of different topics, and each topic has its own distribution of words. Using an unsupervised Bayesian learning algorithm, LDA identifies possible topics that reflect the perspectives of authors and writers from unstructured and extensive online news about esports in the Philippines. LDA helps discover potential topics or themes in large, unstructured datasets. This method allows us to determine the maximum number of topics, label the topics, and identify the differences and significance of topics across various text collections.

The method for generating algorithms includes several steps: a) First, select using the Dirichlet distribution with a given parameter; b) Second, make another selection where specified; c) Third, for each word position (i, j), carry out the following: i) Choose a topic; ii) Choose a word based on the chosen topic.

The sizes are treated as independent of all the other data-generating variables (w and z). Frequently, the subscript is freed.

Moreover, the relationships between the many variables were succinctly expressed with plane notation, as shown in Fig. 1. The boxes stand in for duplicate "plates." Documents are represented by the exterior plate, while the collective selection of words and subjects within a document is represented by the internal plate. N is the document's word count, and M is the number of documents. Consequently,  $\alpha$  is the parameter of the

Dirichlet prior to the per-document topic distributions.  $\beta$  is the parameter of the Dirichlet prior to the per-topic word distribution.  $\theta_m$  is the topic distribution for document  $m$ .  $\varphi_k$  is the word

distributed for the  $k$ .  $k$  denotes the number of topics considered in the model.  $z_{mn}$  is the topic for the  $n$ th word in document  $m$ .  $w_{mn}$  is that particular word. Fig. 1 illustrates the plate notation representing LDA.

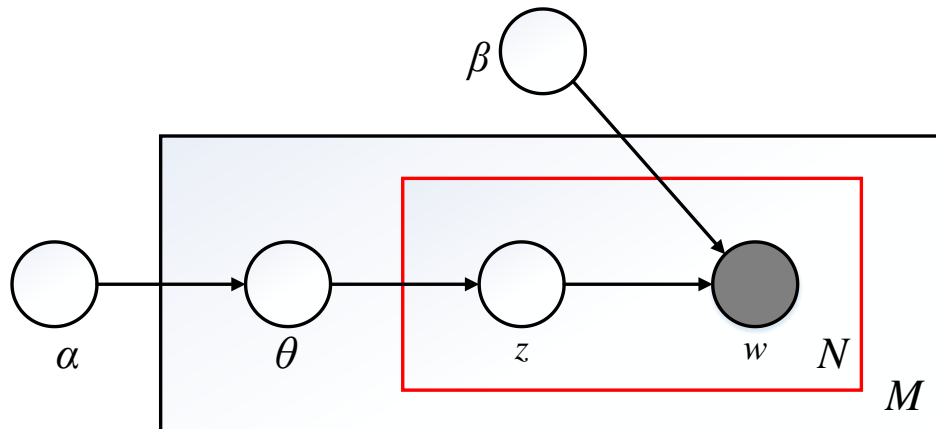


Fig. 1: Plate notation representing LDA

However, we need suitable estimation methods because the LDA model's exact conclusions are difficult to manage. Gibbs sampling, an approximate algorithm based on Dirichlet priors, is widely used for estimating parameters in topic modeling due to its simplicity.

#### 2.2.4. MCMC approach for validation-Gibbs sampling method

One Monte Carlo Markov chain (MCMC) technique that works well for this task is Gibbs sampling. By examining every variable or group of variables and sampling from its conditional distribution while keeping the other variables fixed to their current values, Gibbs sampling creates posterior samples. The fundamental idea behind MCMC sampling is that ergodic averages allow us to estimate any desired expectation.

In situations where both the mixing coefficients and the source signal are non-negative in blind-source separation, the Gibbs Sampling method addresses this problem. The main application of the Gibbs Sampling method is the analysis of spectrometric data groups or sets. Results obtained and gathered with synthetic and experimental spectra are employed to explain the problem of non-negative source separation and to demonstrate the effectiveness of the method proposed (Gelfand, 2000).

Gibbs sampling is a suitable technique for the task. With the remaining variables fixed to their current values, Gibbs sampling generates successive samples by sweeping across each variable (or block of variables) to sample from its conditional distribution. We can estimate or predict any expectations by ergodic averages, which are the logic behind MCMC sampling. As long as we have  $N$ -value simulated samples from that distribution or set, we can compute or evaluate any distribution statistic. This process continues until "convergence" on the sample values have the same distribution as if they

were from the right posterior joint distribution (Caluza, 2018; Rouchka, 2008).

#### 2.2.5. Sentiment analysis processes

In the extraction of valuable and needed subjective information or data from text documents, sentiment analysis and opinion mining are very valuable. Since posted online services and product reviews largely affect markets and consumer preferences, these tasks have become important, especially for marketing and business professionals. Due to the textual differences and the language-specific expression variations, automatic gathering and detection of sentiments expressed for services and products pose challenges and complex or difficult processes.

The contextual mining of text or words, which identifies and extracts subjective information and sentiments from the source document and helps to see the social sentiment in a particular event, is called Sentiment analysis. Nonetheless, the examination of social media streams is limited to basic sentiment analysis and metrics based on counts. This is parallel to scratching the surface and missing out on those highly valuable insights waiting to be discovered. Sentiment analysis, sometimes called opinion mining, is the operation of identifying or understanding if a statement or a word is positive, negative, or neutral. Discovering how people feel or sentiments of the people about a particular topic or event is one use of this technology (Caluza, 2018).

When trying to extract relevant subjective information from text documents, sentiment analysis and opinion mining can be very valuable. Since Internet product and service reviews have an impact on customer behavior and market shifts, these responsibilities have become increasingly important, particularly for business and marketing experts. This work is driven by the fact that, because of textual phenomena and linguistic expression variances, automating the sentiment identification and

retrieval expressed for certain items and services involves intricate processes and presents research problems.

The Sentiment Analysis capabilities of R programming were employed by the researcher in this study to elucidate the attitudes toward esports in the Philippines. R is a well-liked open-source platform with a large user base that creates and manages a variety of text analysis packages (Welbers et al., 2017). Steps were taken after applying the sentiment analysis technique. These procedures include selecting and scraping data, cleaning and preprocessing text, detecting and classifying sentiment, and presenting the results. The earlier phases already included text preprocessing and cleaning, data selection, and scraping. Sentiment detection looks at the points of view in the text that has been extracted. Contents with opinions are retained, whereas items with correct details are disregarded. Sentiment classification is the process of classifying emotions using specific strategies. Typical approaches include the machine learning approach, the lexicon-based technique, and the

sentiment-oriented approach. The goal of the output presentation is to clearly display the results, such as through graphs.

The Syuzhet package is used in this investigation to analyze sentiments and emotions. From the text itself, this package extracts sentiment and sentiment-driven narratives

### 2.2.6. Exhaustive discussion and interpretation

In interpreting the results, findings should be described in detail, followed by an exhaustive discussion about the phenomenon that is revealed and supported by the literature. The discussion should answer the gaps stated in the introduction. One way to provide the analysis in the discussion section is to provide a thorough articulation of the findings by addressing the questions of how it happened, why it happened, and what should be done (Caluza, 2018). Fig. 2 explains the research process.

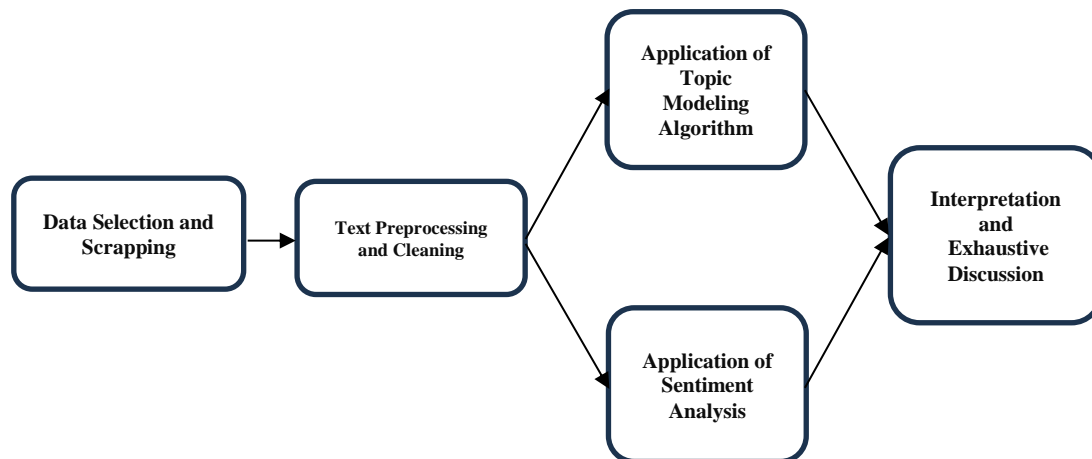


Fig. 2: Research process

The articles were sourced from esports-related research conducted in the Philippines between 2016 and 2021, as well as from reputable and well-known news publishing companies in the country, including the Philippine Star, Inquirer, Manila Bulletin, Manila Standard, and Manila Times. The articles were scraped using a standard scraping method, and irrelevant and superfluous data was deleted. Finally, the researchers mined the conversations from articles with the title Esports in the Philippines or anything that talks about esports in the Philippines to unveil the sentiments of the people relative to the issue of the growing industry in Esports.

### 3. Results and analysis

Research has shown that emotional control improves team performance. Emotion regulation encompasses "the process by which individuals influence which emotion they have, when they have them, and how they experience and express these emotions." It encompasses how people control other

people's emotions as well, such as teammates in team sports. Emotion regulation has been studied in relation to emotional expression, frustrating situations, mental health, and physiological reactions of players. Regulating emotions in esports gaming, however, has not been the subject of much research (Kou and Gui, 2020).

This section provides the presentation, analysis, and interpretation in accordance with the purpose of the study. The discussion is divided into the following sub-topics of the study.

#### 3.1. Sentiments and emotions about esports in the Philippines

Esports has grown to be one of the industries with the quickest growth globally and in the Philippines during the past decade. The genre has become immensely popular, with games ranging from first-person shooters to real-time strategy, and now includes sports titles like NFL, NBA, and FIFA.

The results from the graph of emotions imply that the sentiments of the Filipino people on esports have high positive (1034) sentiment results, which is 50% higher than the negative (392) sentiments. Many Filipinos have positive trust (555), anticipation (465), joy (265), and surprise (144) emotions in the growing esports industry here in the Philippines which triggers some organizers to put up esports events in the country. The outcome is consistent with a study that found that trust is essential for establishing enduring sponsorship relationships in esports and that trust directly affects the levels of commitment and satisfaction observed in esports (Chalmet, 2015). The very competitive world of esports gaming is frequently linked to unfavorable

feelings like anxiousness and stress. Even though most athletes play the game for fun, others think that negative emotions like anger and anxiety can actually improve performance. An athlete might, for instance, see that they were nervous prior to competition but managed to win, which progressively contributed to the perception that worries improved performance. Negative feelings may, therefore, be advantageous in sports (Kou and Gui, 2020). Having low-frequency scores in anger (185), disgust (88), fear (208), and sadness (141) simply means that only a few percentages of Filipinos still have a negative appreciation of esports due to their goals of winning and their attitude of competitiveness in any sports. Fig. 3 shows the data.

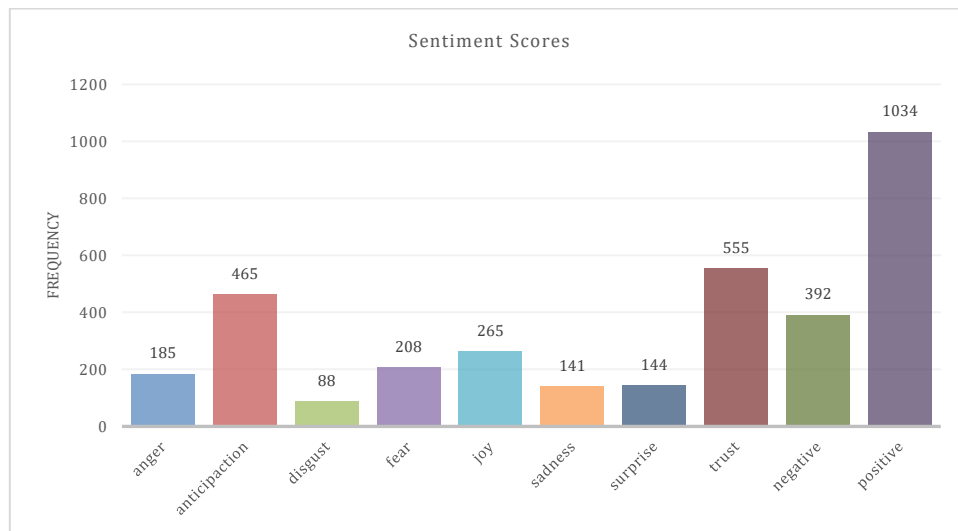


Fig. 3: Sentiments about esports in the Philippines

### 3.2. Identification and assignment of documents to topics about esports

To understand the current topic of esports in the Philippines, this article uses the LDA algorithm. Articles and documents about esports are cleaned and processed through text mining and then automatically assigned to five different topics using LDA. As shown in Fig. 4, documents 5, 19, 20, 24, 25, 26, 39, and 42 are automatically assigned to topic one. Documents 3 and 40 are assigned to topic two. Documents 1, 2, 9, 10, 11, 12, 13, 14, 16, 17, 18, 22, 23, 31, 33, 34, and 36 are assigned to topic three. Documents 4, 6, 7, 8, 27, 28, 30, 32, 38, and 44 are assigned to topic four. Finally, documents 15, 21, 29, 35, 37, 41, 43, 45, and 46 are assigned to topic five. Each document is assigned to a topic based on its content. In total, topic one has 8 documents, topic two has 2 documents, topic three has 17 documents, topic four has 10 documents, and topic five has 9 documents. Topic three is the most common topic in our collection of articles and news about esports in the Philippines. This is followed by topic four, then topic five, then topic one, and finally topic two. These topics highlight current trends and important issues in esports in the Philippines, influencing public perception and the industry's growth and competitiveness. Fig. 4 shows the data.

### 3.3. Unveiling the state of esports in the Philippines through topic-to-term modeling

To understand the table generated from the identification and assignment of documents to topics further, these topics are then related to different terms using the LDA algorithm. Table 1 shows only the top 20 words/terms assigned to each topic have been generated over thousands of words/terms related to the topic.

The diverse character of esports was described by established themes. By documenting a range of experiences within organized competitive gaming and fostering ongoing research progress in this increasingly significant field, this study will contribute to the development of a common understanding of what esports is and is not. Additionally, themes were drawn up for each topic following in-depth phrase evaluations. The study focused on a variety of themes, including "Esports as a growing industry in the Philippines," "Esports teams and tournaments conducted locally are increasing," "Esports as an actual sport that requires mental and physical training," and "Philippine Esports competing globally/internationally." Table 1 shows the topic-to-term generation using LDA and their underlying themes.

Doc No.	Topic No.	Doc No.	Topic No.	Doc No.	Topic No.
1	3	17	3	33	3
2	3	18	3	34	3
3	2	19	1	35	5
4	4	20	1	36	3
5	1	21	5	37	5
6	4	22	3	38	4
7	4	23	3	39	1
8	4	24	1	40	2
9	3	25	1	41	5
10	3	26	1	42	1
11	3	27	4	43	5
12	3	28	4	44	4
13	3	29	5	45	5
14	3	30	4	46	5
15	5	31	3		
16	3	32	4		

Fig. 4: Document to topics assignment using LDA

Table 1: Topic-to-terms generation using LDA and their underlying theme

Top 20 words	Topic 1	Topic 2	Topic 3	Topic 4	Topic 5
1	Game	Dota	Gaming	Will	Esports
2	Esports	Tournament	Athletes	Games	Philippines
3	Players	Team	Health	Mobile	Games
4	One	Manila	Global	Sea	Philippines
5	Can	Said	Esport	Held	Sports
6	Video	Tnc	Said	Arena	Also
7	Like	Local	May	Asian	Will
8	Professional	Pro	Early	Bang	International
9	New	Major	Get	Esports	League
10	Now	Year	Gamers	Esports	National
11	Even	Said	According	Legends	First
12	Just	Among	Player	Sport	Country
13	Tnc	Events	Million	Battle	Philippines
14	Still	Predator	Making	Players	Southeast
15	Also	Top	Hours	Medal	President
16	Market	Prize	Mental	Six	Games
17	Gaming	Official	Back	Tekken	New
18	Playing	Electronic	Tnc	Big	Teams
19	Industry	Teams	Physical	Starcraft	Legends
20	Internet	Tournament	Problems	Two	World

Topic 1: Esports as a growing industry in the Philippines; Topic 2: Increasing number of esports teams and tournaments done locally; Topic 3: E-games as an actual sport, which requires mental and physical training; Topic 4: Inclusion of more e-games in esports; Topic 5: Philippine esports competing globally/ internationally

### 3.3.1. Theme 1: Esports as a growing industry in the Philippines

Nowadays, esports are not just a pastime or hobby; they have evolved into a recognized sport known as esports. In the past, e-games were mainly for leisure or sometimes for earning money through gambling. However, with the growing popularity of these games and the natural human desire to compete, tournaments have significantly increased. These tournaments now offer prize pools worth billions of pesos.

Due to the rising popularity and substantial prize pools, the esports industry has flourished and grown in the Philippines. Investors see opportunities for income from prize pools, advertisements, and product sales. Players benefit through salaries, bonuses from winning, endorsements, and fame.

With a population of 110 million and an average age under 25, the Philippines has a large, youthful demographic. According to Singson, this makes it an

ideal market for sports and esports because young people are more likely to play, consume, interact, and engage with athletes/gamers and sports/esports properties through digital and social channels, in addition to watching or attending sports/esports events.

As the market expands, more businesses and capital are joining, creating profitable opportunities.

### 3.3.2. Theme 2: Increasing the number of esports teams and tournaments done locally

The popularity of esports in the Philippines has significantly increased, with tournament prize pools soaring to new heights. This growth has attracted many investors and aspiring players. Numerous teams are forming to compete professionally, aiming for the prizes and fame offered by esports. Due to its popularity and large audiences, esports tournaments are now held across the country. These events serve as excellent promotions for organizers and help



identify promising individuals or teams for larger competitions.

### **3.3.3. Theme 3: Esports as an actual sport, which requires mental and physical training**

In the past, esports were seen as a pastime, a hobby, or even a vice due to potential addiction. However, due to human competitiveness, esports have evolved beyond just hobbies. They are now considered a sport. This competitive nature leads to the selection of the best players or teams, who usually win the competitions. Consequently, practicing and training, both mentally and physically, have become essential for mastering these games.

Research indicates that physical activity enhances various aspects of cognitive abilities and psychological health. Although there is not much research on how exercise affects mental health or cognitive function in relation to esports performance, preliminary results from a recent study show that there is a substantial relationship between esports players' reaction times and their cardiorespiratory fitness. This suggests that players with higher cardiorespiratory fitness were able to respond more quickly and accurately (McNulty et al., 2023).

### **3.3.4. Theme 4: Inclusion of more e-games in esports**

Different people have different tastes. For this reason, different people prefer different types of games. A few main genres typically encompass esports. Most titles in the esports industry are real-time strategy (RTS), fighting games, first-person shooters (FPS), or multiplayer online battle arena games (MOBA). With this number of games to be played, there are many opportunities for a player to excel. As seen by players and investors in the industry, more games are now being engaged by Filipinos. Starting with the popularity and large prize pool of games such as Dota2, League of Legends, CS Go, and Mobile Legends, more games are played and engaged by Filipinos for competition.

### **3.3.5. Theme 5: Philippine esports competing globally/internationally**

Professional players' involvement, the advent of live streaming, and sponsorships did not acquire much traction in the international esports market until the early part of this decade, despite the fact that the industry started in the 2000s. The game's turning point occurred in 2016 when a Philippine squad crushed a premier group at the Seattle Center's International Dota 2 Championships in the United States. TNC Gaming of the Philippines, who competed as Southeast Asia's representative, triumphed over formidable squad OG from Europe. TNC won P18 million in the subsequent year. With this event, many players/teams have been inspired

to compete globally. International competitions offer popularity and a large prize pool, which is the biggest attraction for players/teams. Many Filipino teams are engaging in international competitions like TNC, Detonator, and Cignal Ultra.

Filipino esports competitors have begun to become well-known in the global gaming community after going undefeated in some of the most prominent competitions. Filipinos would usually support these activities. Even if they are absent in person, Filipino esports enthusiasts are felt virtually.

## **4. Conclusion**

The esports phenomenon has profoundly transformed the gaming sector, bringing about cultural and social changes across generations and creating new global market opportunities. This trend is especially prominent in the Philippines, where esports is rapidly growing and attracting a passionate fan base.

Over the past year, esports has gained significant popularity in the Philippines, with the return of offline events like competitive leagues and conferences drawing large crowds as people adapt to the "new normal." These events have further established esports as a thriving industry both locally and globally.

This study reveals a range of sentiments related to esports, including emotions like anger, anticipation, disgust, fear, joy, sadness, surprise, trust, negativity, and positivity. Many Filipinos express positive feelings of trust, anticipation, surprise, and excitement about the growing esports sector. This enthusiasm is fueled by the notable dedication of Filipino gamers, who often consider esports a major part of their daily lives, spending hours playing and practicing their favorite games. For many, esports is both a passion and a way to connect with like-minded individuals, fostering a strong sense of camaraderie among players.

Esports competitions and events organized by regional gaming associations and local communities bring together players from across the nation, providing platforms to showcase their skills and promote friendship and teamwork.

Globally, esports involves professional gamers competing in video games before live and virtual audiences. This trend is also evident in the Philippines, where esports has evolved from a recreational activity to a legitimate industry.

The growth of the esports sector in the Philippines has been significantly supported by the availability of high-speed internet, allowing players to compete internationally. This has raised the profile of esports in the country and given Filipino players a chance to shine on the global stage.

Esports athletes must prepare both mentally and physically to avoid health issues, emphasizing the need for comprehensive training that includes technical skills, mental fortitude, and physical wellness. Esports players expend considerable physical energy and require superior coordination,

particularly in vision search and hand-eye coordination.

Esports has created a strong sense of community among Filipino players and has the potential to become a major industry in the country. As esports continues to grow, its impact on the gaming industry in the Philippines and beyond will be an interesting development to watch.

## Compliance with ethical standards

## Conflict of interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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