A Morphological Analysis of Word Formation Process Used in Mobile Application Names

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ABSTRACT
Research of the word formation process, especially in mobile application names is interesting to study since there has not been sufficient research that studies this case. In relation to this, the researcher was interested in revealing the word formation process found in mobile application names in Google Play Store. This study was a content analysis that employed word formation process proposed by Yule (2010). Therefore, this study aimed to investigate the word formation process found in mobile application names in Google Play Store with several categories. The findings showed that the word formation process occurred in four processes, namely compounding, blending, derivation, and multiple processes. Here, the multiple processes dominate the other processes which occurred in four application names. The compounding processes occurred in two applications, followed by the blending processes with two occurrences, and the other two appeared in the derivation process. Nevertheless, the clipping, acronym, coinage, and borrowing processes were not found in this study. Hence, the results indicate that the word formation processes in mobile application names also employed capitalization stylistics to raise more appealing brands. Therefore, the researcher suggests that future researchers can fill in the gap in the word formation process in particular scopes such as in game names and e-commerce application names.

Keywords: Google Play Store, mobile application name, word formation process

INTRODUCTION

In this fast-growing era of technology, people like to create mobile applications that support people's needs. People are creative in naming applications based on the core features with appealing names. In this case, the names of the apps have to be blazingly attractive so that they can captivate users' attention and determine the succession of the product (Viramdani & Himmawati, 2017; Anandan, 2009; Batey, 2008). In Google Play Store, we will find out outnumber application names that absorb English words, such as *NovelMe, StormGain, and StoryLab.* Hence, it is interesting to study how these mobile application names are constructed. To uncover this case, we can employ word formation processes which cover several types, namely borrowing, coinage, compounding, blending, clipping, back formation, conversion, acronym, derivation, and multiple processes (Yule, 2010). Thus, word formation process is beneficial to unfold how names of brands or applications are shaped.

Previous research conducted by Mustafa, Kandasamy, & Yasin (2015) investigated a study word formation process in everyday communication on Facebook. The researchers studied the common features of the word formation process used by Malaysian young adult Facebook users. Therefore, the researchers investigated the causes for applying these features on Facebook. The results showed that the common word formation processes occurred in abbreviation (clipping, acronyms, and combination of letters), and blending. Among these three major occurrences, the highest one appeared in abbreviation. The reasons why the users tended to use abbreviation was to save time, fill the communication gap, show the group membership

and express their emotions and feelings intensely. To date, there has not been a sufficient study that investigates the application names in Google Play Store. Hence, it is beneficial to provide a deeper analysis of how the mobile application names in the Google Play Store are reflected in the word-formation processes.

Hence, this research aims to discover word formation process found in the application names in Google Play Store. The research questions addressed to this study cover two questions, namely 1) What types of word formation used in mobile application names in Google Playstore?, and 2) How the mobile application names in Google Play Store are reflected in the word-formation processes? Thus, the purpose of the study is to uncover the types of the word formation process and how mobile application names are constructed.

LITERATURE REVIEW

Word Formation Process

The word formation process in morphology has become the heart of this study. Morphology itself is the study of the internal structure of words and how they are formed (Yule, 2010). McCarthy (2002) states that morphology is a field of grammar that studies the construction of words and relationships between words that entails the morphemes that formulate them. In his case, a morpheme is the minimal typical unit of grammar, and the primary sphere of morphology (Crystal, 2008). Besides, Kortmann (2005) adds that word formation can also be described as vocabulary expansion in a language.

Therefore, to discover how words and morphemes are formed, word formation process is regarded as the rules of how to produce new words (Hacken & Thomas, 2013). There are eight-word formation processes in morphology, namely borrowing, coinage, compounding, blending, clipping, back formation, conversion, acronym, derivation, and multiple processes (Yule, 2010). Firstly, *borrowing* is a word formation process in which words used are taken from other languages to form a new vocabulary. For instance, *shish kebab* (Turkish), *sofa* (Arabic), and zebra (Bantu). Secondly, *coinage* is a word formation process that invents a new word that has not been existed before, such as *ebaying*, *xeroxing*, and *googling*. Thirdly, *compounding* is the joining of words that create a single word, like *footprint*, *girlfriend*, *textbook*, and *notebook* (Yule, 2010).

Fourthly, *blending* is a word formation process that is similar to compounding because these two processes involve a process of combining two separate words to form a single word. However, the difference is that in blending, the parts of the word are removed. For instance, *motel* (motor + hotel), *brunch* (breakfast + lunch), and *staycation* (stay + vacation). Fifthly, *clipping* is similar to blending which requires deleting the parts of the words. However, clipping prefers to shorten the words from the original ones, such as *ad* (advertisement), *pop* (popular music), and *gas* (gasoline). Sixthly, *back formation* is a word formation process that is formed from an existing word by reducing it to form a new part of speech. For example, *lazy* (laze), *edit* (editor), and *actor* (act). Seventhly, *conversion* is a process of forming a new word class from an existing word that involves zero derivation, like the word *need* as a noun and *need* as a verb (Yule, 2010).

Eighthly, *acronym* is a word formation process in which the initial letters of a group of words are taken to form a new word. For example, *WHO* (World Health Organization), *ASAP* (As Soon As Possible), and *RADAR* (Radio Detection and Ranging). Ninthly, *derivation* is a process of forming a new word from an existing word with the addition of bound morphemes, such as *happiness* from happy + *-ness* and *sadly* from sad + *-ly*. Lastly, *multiple process* is a word formation process that involves more than one process to form a word, like the word *snowball* (compounding) and *snowballed* (compounding + conversion). These are the eight word formation processes used in morphology to study words and morphemes and how they are merged (Yule, 2010).

Previous Studies of Word Formation Process

In this section, two previous studies give contributions to the current study. Previous research conducted by (Anggrisia, Rosyidah, & Riza (2019) investigated a study on he word formation process on best seller food brand names in Grab and Gojek applications. The researchers applied word formation process study to unfold how the food brand names were formed. The results showed that the word formation process occurred in compounding, borrowing, reduplication, abbreviation, acronym, and clipping. Thus, the best seller food brand names in Grab and Go-Jek applications almost occupied all types of word formation processes (Anggrisia, Rosyidah, & Riza, 2019).

Secondly, Faradisa, Aziz, & BurhanuddinYasin (2019) researched the analysis of word formation processes found on Instagram. The researcher employed word-formation processes promoted by Delahunty and Garvey (2010) and Plag (2003). The results showed that the word formation process appeared in acronym, borrowing, abbreviation, blending, coinage, and affixation. Therefore, it can be inferred that people create the names with different types of word formation processes to help them understand the use of each word (Faradisa, Aziz, & BurhanuddinYasin, 2019).

METHOD

In this chapter, the researcher describes the methodology employed in this research. Four sections are presented accordingly, namely the research method, the object of the study, data collection, and techniques of data analysis. Each section is described respectively.

Research Method

This study was qualitative research that employed a content analysis. According to Krippendorff (2004), content analysis is "a research technique for making replicable and valid inferences from texts (or other meaningful matter) to the contexts of their use" (p. 18). The analysis was done by applying the approach of the word formation process to unfold the root of how mobile application names are formed. Thus, the researcher employed this method to answer the research questions. There were two research problems, namely 1) What types of word formation used in mobile application names in Google Play Store?, and 2) How the mobile application names in Google Play Store are reflected in the word-formation processes? Hence, content analysis is applied to examine the word formation process reflected in the mobile application names in Google Play Store.

The Object of Study

In this study, the object of the study was the mobile application names in the Google Play Store application. These names were taken on June, 4th 2021 retrieved from https://play.google.com/store. The researcher picked ten mobile application names taken from various categories to study the word formation process. Table 3 shows the mobile application names along with their sources and categories.

Table 3. Mobile Application Names

No.	Application Name	Category	Source
1	Cups	Game	https://play.google.com/store/apps/details?id=com.blu.cups
2	DIY Notebook	Art	https://play.google.com/store/apps/details?id=ai.moises
3	Spotify	Music & Podcast	https://play.google.com/store/apps/details?id=com.spotify.tv.android

4	CapCut	Video Editor	https://play.google.com/store/apps/details?id=com.lemon.lvoverseas
5	Makeup Plus	Beauty Editor	https://play.google.com/store/apps/details?id=com.meitu.makeup
6	Beautify	Beauty Editor	https://play.google.com/store/apps/details?id=com.AppInstitute.beautify2
7	StoryLab	Insta Story Maker	https://play.google.com/store/apps/details?id=com.cerdillac.storymaker
8	PUBG	Game	https://play.google.com/store/apps/details?id=com.tencent.ig
9	StromGain	Cryptocurrency	https://play.google.com/store/apps/details?id=com.stormgain.mobile
10	Cryptogram	Game	https://play.google.com/store/apps/details?id=com.pixplicity.cryptogram

Data Collection

The researcher collected the data by analyzing each mobile application name using a tree diagram. To obtain the data of the text, three phases were done. Firstly, the researcher analyzed the word formation process in mobile application names. The second step was coding the word formation processes of the mobile application names. Lastly, the researcher discussed how the word formation process is reflected in the mobile application names in Google Play Store. Therefore, the analysis of the word formation process was sufficient to reflect the major processes of mobile application names used in the Google Play Store.

Techniques of Data Analysis

To conduct this study, the researcher employed content analysis Creswell's (2009) which contains six stages to analyze the word formation process. Firstly, the researcher organized and prepared the data for analysis. The second step is reading through all data. Thirdly, the researcher coded the data of each name based on their processes. The four stage is interrelating the data based on their process. Lastly, the researcher interpreted and presented the results of the analysis (Creswell, 2009).

To validate the data, the researchers repeatedly checked the classification of the processes in each mobile application name. During the validation process, the researcher encountered some mistakes in the analysis and the classification of the word formation processes. Therefore, the researcher fixed the elements of which, re-categorized the processes, and re-discussed the findings.

FINDINGS AND DISCUSSION

In this research, the name construction of song mobile application names in the Google Play Store is reflected through the analysis of word formation processes. There are four sections in this chapter, namely the analysis of the compounding process, blending process, derivation process, and multiple processes. The researchers discovered that multiple process as one of the eight categories in the word formation process appeared dominantly. To see the detailed findings, a table presenting the findings is presented in Table 4.

Table 4. Word Formation Process of Mobile Application Names

No.	Application Name	Word Process	Analysis
1	Cups	Derivation	[$_{N}$ [$_{N}$ cup] [$_{Aff}$ s]]
2	DIY Notebook	Multiple Process	[$_{N}$ [$_{v}$ do] [$_{Det}$ it] [$_{Det}$ your] [$_{Aff}$ self]] [$_{N}$ note] [$_{N}$ book]]]
3	Spotify	Blending	[$_{N}$ [$_{N}$ spot] [$_{V}$ identify] [$_{Aff}$ -ify]]]

4	CapCut	Blending	[N [V capture] [N cap]] [v cut]]]]]
5	Makeup Plus	Multiple Process	[N [V make] [Prep up] [N makeup]]] [Adj plus]]]]]
6	Beautify	Derivation	[N [N beauty] [Aff fy]]]]
7	StoryLab	Multiple Process	[N [N story] [N laboratory] [N lab]]]]
8	PUBG	Multiple Process	[N [V play] [Aff er]] [V know] [V known] [Adj unknown] [Aff 's]] [N battle] [N ground] [aff s]]]]]]]]
9	StromGain	Compounding	[N [N storm] [N gain]]]]
10	Cryptogram	Compounding	[N [N crypto] [N gram]]]]

Referring to the findings, multiple processes dominate the other processes which occurred in 4 applications. The compounding processes occurred in 2 applications, followed by the blending processes with 2 occurrences, and 2 in the derivation process. However, the clipping, acronym, coinage, and borrowing processes were not found in this study. Hence, the word formation processes only cover four categories discussed respectively in the following paragraphs.

Compounding

In this study, the researcher found three compounding processes among ten samples. Compounding is the joining of words, stems, bases, or roots to create a single word (Yule, 2010; Lieber, 2009). In this case, the compounding process was applied to form a single word to name mobile applications in Google Play Store. The excerpts of the compounding processes are provided as follows.

Excerpt 1
Cryptogram [N [N crypto] [N gram]]]]

Excerpt 2
StormGain [N [N storm] [N gain]]]]

As can be seen above, excerpt 1 applied the compounding process to form the word *cryptogram*. This word was formed to create a noun (name) consisting of two words, namely N *crypto* + N *gram*. These words come from Greek, where crypto - *kruptos* means *hidden*, and *gram* - *grānum* means seed. These two nouns were combined to form a new word *cryptogram* which means a writing in code (Dictionary.com, 2021). According to Handayani (2013), the phrase structure in android application names frequently uses noun phrases to form a new name. In this game application, the founder took this name originally from the English word without adding any other words. The relation between the name and the game itself is that people are required to find hidden motivational quotes from the cryptogram. Therefore, these two nouns were merged to create a single word *Cryptogram* to name this puzzle game. In relation to this, Lieber (2009) asserts that the English language substantially constructs compounds by using free bases.

Secondly, excerpt 2 shows the use of the compounding process in the word *StormGain*. This word was constructed to form a name that contains two words, namely N *storm* + N *gain*. The word *storm* comes from Middle English, Old English; cognate with Dutch *storm* which means violent disturbance of the atmosphere. Meanwhile, the word *gain* comes from the Old French *gaaignier* which means *to earn* (Dictionary.com, 2021). Therefore, in this application, the founder picked this name from two English words *storm* + *gain*, and merged them to form the word *StormGain*. Here, the founder put the capital letter *G* in the middle of the word *gain* as the style of this application name to be more eye-catching as capital letters work better for brand names (Ward, 2014). These two words were combined to form a new word *StormGain* which means to gain money by trading the cryptos. In this sense, the interconnection between

the name and the application itself is that people can trade and mine money through this application Hence, these two nouns were combined to form a single word *StormGain* to label this cryptocurrency application.

Blending

In this study, the researcher found two blending processes in the mobile application names. According to yule (2010), blending is a word formation process that is similar to compounding because these two processes involve a process of combining two separate words to form a single word. But the difference is that in blending, the parts of the word are removed. In addition, Plag (2003) describes blending as a process of a segment of different words or terms to create a new term. The excerpts of the compounding processes are provided as follows.

Excerpt 3
Spotify [$_{N}$ [$_{N}$ spot] [$_{V}$ identify] [$_{Aff}$ -ify]]]]]

Excerpt 4
CapCut [$_{N}$ [$_{V}$ capture] [$_{N}$ cap]] [$_{v}$ cut]]]]]

Firstly, excerpt 3 applied the blending process to form the word *spotify*. The word *spot* comes from the Old English *splott* a patch of land. Meanwhile, the word *identify* comes from Medieval Latin *identificāre* which means recognize (Dictionary.com, 2021). This word was formed to create a name that comes from two words, namely $_{N}$ *spot* + $_{V}$ *identify*. In this case, the part of the word ***ident****ify* was removed. In this case, suffixes significantly occur in word formation process (Montero-Fleta, 2011). Therefore, the combined words are *spot* + *-ify* which forms *spotify*. Therefore, the meaning between this application name and the music and podcast application itself is to find something that people want, such as songs and podcasts that this application serves. Therefore, these two nouns were blended to create a single word *Spotify* to name this music and podcast application.

Secondly, excerpt 4 shows the use of the blending process in the word *CapCut*. The word *capture* comes from Latin captura which means the act of taking or seizing objects. Meanwhile, the word *cut* comes from Middle English *cutten* which means *to cut* (Dictionary.com, 2021). This word was constructed to create a name that comes from two words, namely $_{V}$ *capture* + $_{V}$ *cut*. In this case, the parts of the word *cap****ture*** were removed. Therefore, the combined words are *cap* + *cut* which forms *capcut*. Here, the founder put the capital letter *C* in the middle of the word *cut* as the style of this application name turns out to be more appealing for brand names (Ward, 2014). Giyatmi, Arumi, & Setiyono (2021) found similar findings in blending which takes the first syllable of the first word and takes the whole part of the second word. Therefore, the words *cap* and *cut* were merged to form a new word *CapCut* which means to capture a moment and modify it. In this sense, the interconnection between the name and the application itself is that people can take a video as the act of 'capture' and 'cut' or edit the video through this application. Hence, these two words were combined to form a single word *CapCut* to label this video editing application.

Derivation

In this study, the researcher analyzed the word formation process in two mobile application names. Derivation is a process of forming a new word from an existing word with the addition of a bound morpheme, like the word *unhappy* from *un* + *happy* (Yule, 2010). The excerpts of the derivation processes are provided as follows.

Excerpt 5
Cups [$_{N}$ [$_{N}$ cup] [$_{Aff}$ s]]]]

Excerpt 6
Beautify [$_{N}$ [$_{N}$ beauty] [$_{Aff}$ fy]]]]

As can be seen above, excerpt 5 applied the derivation process to form the word *cups*. This word was formed to create a noun (name) from the word $_{N}$ *cup* + $_{Aff}$ *s*. The word *cup* comes from Old English *cuppe*<Latin *cuppa* which means a small container for liquid (Dictionary.com, 2021). In this game application, the founder took this name because the game is a game cup containing various liquids where the gamer has to sort the same colors in the same cup. Therefore, the relation between the name and the game itself is that people are required to fill the liquid in several *cups* with sorted colors. That is why this word was added with the suffix *-s* to specify that this game requires a lot of cups. It indicates that the function of the cups is regarded as the ability of the cup to contain the watercolors (Danesi, 2004). Therefore, the word *cup* and the bound morpheme *-s* were merged to create a single word *Cups* to name this cup game.

Secondly, excerpt 6 shows the use of the derivation process in the word *beautify*. This word was formed to create a name from the word $_{N}$ *beauty* + $_{Aff}$ *fy*. The word *beauty* comes from Middle English *beaute* which means *pretty*, *handsome*, and *charming*. Therefore, in mid-15c., the word beauty is added with the suffix -fy to form a new form of *beautify* which means to make beautiful (Dictionary.com, 2021). In this application, the founder picked this name originally from the English word without adding any other affixes. Referring to the naming strategy, the mobile application name *beautify* is created from an existing English word that considers the usability of enhancing the appearance of the word itself (Danesi, 2004). Hence, the interconnection between the name and the application itself is that people can beautify their photos, especially for hair, nails, and makeup. That is the reason why the word *beauty* was added with the affix *-fy* to highlight that this application is used for beautifying photos. In relation to this, Pamungkas (2015) concludes that by recognizing the word formation process in a product, the users will be able to perceive the use of the product. Therefore, the word *beautify* was formed to name this beauty application.

Multiple Processes

In this study, the researcher found that multiple process has become the highest occurrence of the word formation process in mobile application names. According to Yule (2010), m*ultiple process* is a word formation process that involves more than one process to form a word, like the word *snowball* (compounding) and *snowballed* (compounding + conversion). The excerpts of the verbal processes are presented as follows.

Excerpt 7
StoryLab [$_{N}$ [$_{N}$ story] [$_{N}$ laboratory] [$_{N}$ lab]]]]

Excerpt 8
DIY Notebook [$_{N}$ [$_{v}$ do] [$_{Det}$ it] [$_{Det}$ your] [$_{Aff}$ self] [$_{N}$ note] [$_{N}$ book]]]

Firstly, excerpt 7 shows the use of multiple process which contains *compounding* and *clipping* processes in the word *StoryLab*. Compounding is the joining of words to create a single word, like the word *notebook*. Meanwhile, *clipping* is similar to blending which requires deleting the parts of the words (Yule, 2010). However, clipping prefers to shorten the words

from the original ones, like the word *gas* from *gasoline*. In clipping, when a word is clipped, it flatters autonomous and can be merged with other word formation processes (Moehkardi, 2016). Therefore, the word *story* comes from the Latin *historia* which means *history*, while the word *laboratory* comes from the medieval Latin word *laboratorium* which means *to labour* (Dictionary.com, 2021). This word was constructed to form a name that comes from two nouns, namely $_{N}$ *story* + $_{N}$ *laboratory*. In this case, the word *laboratory* was clipped into the word *lab*. In relation to this, Ratih & Gusdian (2018) concluded that the final clipping is a frequent type that occurs in creating a new term. Thus, in this application, the founder took this name from two English words $_{N}$ *story* + $_{N}$ *lab*, and merged them to form the word *StoryLab*. In this name, the founder put the capital letter *L* in the middle of the word *lab* as the style of this application name to be more appealing since capital letters work better for brand names (Ward, 2014). These two words were combined to form a new word *StoryLab* which means a lab for making people's stories as their history. In this case, the relation between the name and the application itself is that a place or laboratory for people to design Instagram stories. Hence, compounding and clipping processes were combined to form a single word *StoryLab* to label this application.

Secondly, excerpt 8 applied multiple process that consists of acronyms and compounding processes in the word *DIY Notebook*. An acronym is a word formation process in which the initial letters of a group of words are taken to form a new word (Yule, 2010; Bauer 1983, as cited in Danks, 2003). Meanwhile, compounding is the joining of words to create a single word, like the word *girlfriend*. The acronym DIY ($_{V}$ Do $_{Det}$ + It $_{Det}$ + Yourself) and the compounding word notebook ($_{N}$ note + $_{N}$ book) were merged to form this application name. These two words were combined to form a new word *DIY Notebook* which means a notebook for creating our own craft. In this case, the interconnection between the name and the application itself is that it is used for making DIY notebooks from scratch in which we are the artist of the creation that we make. Hence, acronym and compounding processes were merged to form a single word *DIY Notebook* to name this application.

CONCLUSION

In summary, the word formation process in mobile application names occurred in four processes, namely compounding, blending, derivation, and multiple processes. The results showed that multiple processes dominate the other processes which occurred in four applications. The compounding processes appeared in two applications, followed by the blending processes with two occurrences, and two in the derivation process. However, the clipping, acronym, coinage, and borrowing processes were not found in this study. Firstly, in the compounding process, the names were formed from nouns and then these nouns were merged to create a new single word. Secondly, in the blending process, the mobile application names were formed from nouns and verbs to show the root words that work as action verbs. Thirdly, in the derivation process, the suffixes were used to form the name of the applications to indicate the characteristics of the game. Fourthly, the multiple process was applied to form mobile application names that contain compounding, clipping, and acronym processes. In some of the findings, the researcher found that the founders of the application used the capital letter in the middle of the second word, especially in compounding and blending processes as it requires two or more words. The capitalization style was used as the style of this application name to be more eye-catching as capital letters work better for brand names (Ward, 2014). In short, the word formation process in mobile application names mostly employed compounding, blending, derivation, and multiple processes and used capitalization as a style of the application names.

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