

MIND THE GAP: DISCREPANCY BETWEEN CUSTOMER EXPECTATION AND PERCEPTION ON COMMERCIAL CHATBOTS USAGE

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ABSTRACT

The advent of artificial intelligence gives rise to chatbots. Chatbots are widely adopted by marketers as query-answering tool to build, manage, and grow customer relationship by responding to customers' questions in a human-being manner automatically. While the far-reaching potential of chatbots for commercial purposes has been widely recognized by marketers, this study attempts to advance marketers' understanding on chatbots from the perspective of users – customers. Understanding customer expectation and perception on chatbots usage may help marketers to ensure customer experience consistently meets or exceeds their expectation. The purpose of this study is to find out if there is discrepancy between customer expectation and perception of chatbots performance, what causes the discrepancy, and how to minimize the discrepancy. Specifically, this study investigates the reasons why customers use chatbots, their usage experience, and their attitude towards chatbots in terms of perceived usefulness, perceived ease of use, and perceived helpfulness. Respondents expressed that chatbots are useful and easy to use, yet the responses provided by chatbots are not very accurate and humorous. The findings revealed that respondents expect marketers to improve the chatbots performance in areas of human-like communication and the entertaining features. This study provide marketers with implications on how to design and improve commercial chatbots to close or minimize the gap between customer expectation and experience.

Contribution/Originality: This study is one of very few studies which have investigated the discrepancy between customer expectation and perception on commercial chatbots usage, This study provide marketers with implications on how to design and improve the features of commercial chatbots for enhancing customer experience and satisfaction.

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1. INTRODUCTION

The advancement of artificial intelligence (AI) gives rise to a new type of service encounter – chatbots. Chatbots are AI application that is developed to streamline service operations by having conversation with customers and responding customers' inquiries automatically in natural language (Araújo & Casais, 2020; Mahendiran, 2018). The AI-infused chatbots have reshaped business landscape by transforming the ways that marketers build, maintain, and grow their customer relationships (Overgoor, Chica, Rand, & Weishampel, 2019; Sheehan, Jin, & Gottlieb, 2020). Marketers such as Amazon, Google, Facebook and LinkedIn have capitalized on chatbots for improving service

performance by automating company-customer interaction and major areas of customer service operations in a conversational manner. There are more than two billion messages are sent between marketers and customers every day particularly on Facebook (Wertz, 2018). By employing chatbots for service provision or delivery, marketers reduce service operation costs by 30%, while accelerating the customer inquiry response rate to 80% (Kaczorowska-Spychalska, 2019). Also, chatbots help marketers to drive brand engagement by providing personalized content based on customers' interest and past order record, and providing customers with instant responses as well as consistently friendly services in 24/7 (Brandtzaeg & Følstad, 2018). Recent research indicated that 85% of customer interaction will be managed by artificial intelligence, and 80% of the companies would adopt chatbots to handle customers' frequently ask questions and enhance customer experience by 2020 (Chung, Ko, Joung, & Kim, 2018).

The far-reaching potential of chatbots for commercial purposes has been highly recognized and appreciated by marketers in retail industry. Chatbots are widely adopted by marketers in retail industry as a popular tool in relationship marketing for communication and customer experience enhancement (Overgoor et al., 2019; Verhoef, Kannan, & Inman, 2015). Despite of the widespread usage and popularity of chatbots, little is known about chatbots from customers' perspective. While extant study has mainly centered on examining the application of chatbots in marketing organization (e.g., (Hildebrand & Bergner, 2019; Moriuchi, Landers, Colton, & Hair, 2020; Overgoor et al., 2019)) and business performance consequences of chatbots adoption (e.g., (Duijst, 2017; Kaczorowska-Spychalska, 2019)), this study aims to advance marketers' understanding of customer expectation and perception on commercial chatbot usage. Specifically, this study collects and analyzes data from customers to 1) explore the reasons why customers use chatbots; 2) examine consumer attitude towards chatbots, in terms of perceived usefulness, perceived ease of use, and perceived helpfulness; and 3) investigate consumer experience on chatbots.

Understanding chatbots from customer perspective is important for marketers to managing customer expectation and experience. Chatbots has recently become one of the buzzwords and a must tool in marketing (Zarouali, Van den Broeck, Walrave, & Poels, 2018). Between marketers' thoughts about customer experience on chatbots and customers' actual perception of chatbot performance lies a gap. It is important for marketers to understand how customer experience was and how customer expectations are evolving to effectively close the gap. Consumer attitude towards chatbots is determinant of consumers' intention of usage, referral, and patronage (Moriuchi et al., 2020). Understanding how consumers perceive chatbots usage may help marketers to develop a better chatbot for enhancing customer experience (Cicco, Silva, & Alparone, 2020; Davis, Bagozzi, & Warshaw, 1989). Also, consumers are increasingly using both the online and offline retail channels for shopping, expecting an integrated communication and service experience provided by marketers (Verhoef et al., 2015). With the advancement of multimedia or omnichannel development, customers nowadays have more contact points with marketers and their experiences are more social-oriented in nature. These changes on consumer behavior have urged marketers to integrate advanced technology such as AI-infused chatbots into their business operations to provide customers with rewarding experience consistently, while meeting or exceeding customer expectations. While chatbots are increasingly adopted by marketers to manage omnichannel and relationship marketing, it is important for marketers to measure customer experience on chatbots for predicting customer satisfaction, loyalty and sales (Araújo & Casais, 2020).

2. THEORETICAL FRAMEWORK

2.1. Natural Language Processing

Natural language processing is one of the AI methods that facilitates interaction and conversation between humans and computers via the processing of natural language, also known as human language. Natural language processing aims to read and understand human language, and respond to humans intellectually. Natural language processing is a discipline that combines knowledge of linguistics and computer science that traditionally uses rule-based methods to deal with the linguistics rules of natural languages to attempt to make sense of text useful to users (Deng, Deng, & Liu, 2018). Nowadays, natural language processing gains its popularity and has been widely used in many applications, such as Google Translate, the grammatical checker of Microsoft Word, and virtual personal assistant such as Siri, Amazon Alexa and Google Assistant (De Vries, Schoonvelde, & Schumacher, 2018). In the commercial sector, natural language processing can be applied in automatic documentation and text summarization for improving efficiency of operations (Calvo, Milne, Hussain, & Christensen, 2017). Also, it can be used to conduct sentiment analysis on social media content to capture emotion and feeling of consumers for better communication with them via customizing message (Farzindar & Inkpen, 2015; Nasukawa & Yi, 2003). When people already have experience in using artificial intelligence, their attitude towards the performance of commercial chatbots may be formed and shaped. Specifically, people expect that chatbots are able to accomplish some intellectual tasks (De Vries et al., 2018).

2.2. Opportunities and Challenges of Chatbots Application

Chatbot is a query-answering tool that responds to text in a human-being manner by natural language processing (Chung & Park, 2018; Dharwadkar & Deshpande, 2018; Ishida & Chiba, 2017). Chatbots are often described as advanced and promising conversational interfaces that simplify communication between marketers and customers through simulating a conversation with human users (Chung et al., 2018; Hill, Ford, & Farreras, 2015). There are two types of chatbots: 1) chatbots regulated by previously defined keywords and 2) chatbots supported by machine learning algorithms. The limitation of the former one was the responses of a specific command is based on the keyword that was previously defined. Specifically, the user inputs are broken and compiled into a few words representing the user intent. For instance, "search for a T-shirt that is made of cotton" will be broken down to

searching for a T-shirt followed by other factors like materials to get a better understanding on the intent of the user (see Figure 1). Likewise, the machine-learning algorithms based chatbots are capable of perceiving the users' own language even if it contains errors. Despite of the pitfalls of both types of chatbots, they simulate an intelligent conversation in order to provide customers with timely and accurate answers of their queries.

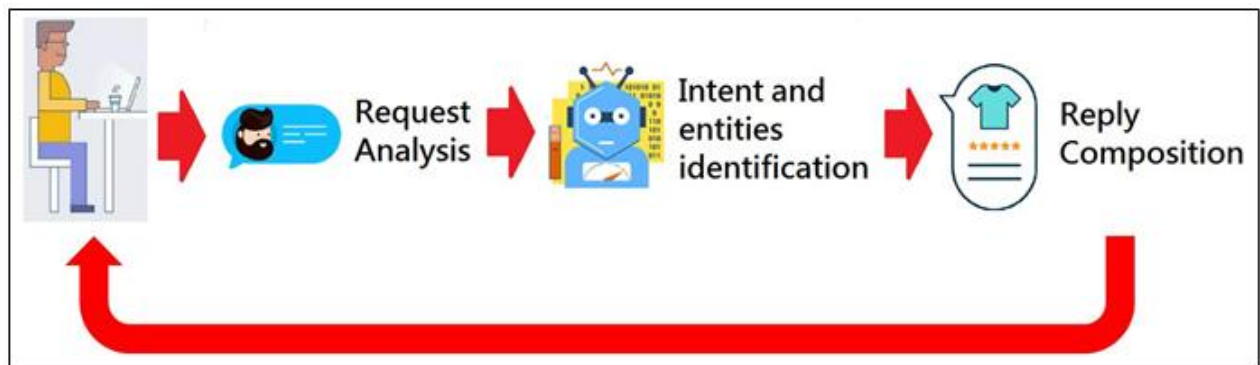


Figure-1. A typical operational procedure of a chatbots for online shopping.

Chatbots powered with natural language processing offer great promise for e-commerce applications. Chatbots have been used as virtual sales assistants in stores. Chatbots facilitate real time interaction between marketers and customers in 24/7, providing immediate assistance to consumers in need. Moreover, connected with the knowledge base, chatbots allows marketers to handle customers' inquires efficiently because they can present the precise and relevant answers to consumers. Chatbots can also be personalized and offer conversational and one-to-one service to users. Like other computer applications, cost and time can be saved. Chatbots can manipulate many questions without intervention of human agents who are allowed to focus on more complicated activities.

In tradition, human users are required to communicate with computers in programming languages. Chatbots powered with natural language processing, however, present challenges to computers for understanding and interpreting the meaning of sentence and its structure. Natural languages are usually vague and ambiguous and the linguistic structure depends on many complex variables, including social context and slangs. Natural languages are quite irregular because they are the products of speech patterns that has evolved to fit the requirements of people over thousands of years. There are linguistic rules governing the syntactic and semantic structures of natural languages (Zitouni, 2014). Some of the rules are low-level ones, such as using the character "s" to signify the third-person singular verb in English. Others involve understanding concepts connected to deliver the intended meaning. It is usually difficult to understand if two concepts are the identical. For a given idea, humans may write it in various expressions infinitely. For example, the following two sentences carry a similar meaning.

The child runs in the street.

The kid rushes in the road.

A computer may not have sufficient data and knowledge to cover all the ways in which concepts can be defined. Humans may also use intuitions to interpret things ,when some of the information is not explicitly provided. A computer usually does not have such a kind of intuition. For example, the following three sentences are almost identical but the pronoun "it" refers to different meanings.

A monkey eats a banana because it is delicious.

A monkey eats a banana because it is hungry.

A monkey eats a banana because it is tea-time.

In natural language processing, syntactic and semantic analyses are the two main techniques used to process the human languages (Reshmi & Balakrishnan, 2016). Syntax refers to the grammatical rules that govern the arrangement of words in a sentence. The purpose of syntactic analysis is to assess how the natural languages align with these grammars. The following are some examples of syntax rules (grammars).

$S \rightarrow NP VP$

$NP \rightarrow Det N$

$VP \rightarrow V S$

$VP \rightarrow V$

In the first rule, S is a sentence that is formed by NP (noun phrase) and VP (verb phrase). In the second rule, NP is formed by a determinant (Det) and a noun (N). In the third and fourth rules, VP is formed by V (verb) and another sentence (S) or by a verb simply. These four rules can be used to analyze the sentence "The man said the woman thought the dog barked." into a parse tree that represents the syntactic roles of words in a sentence (see Figure 2).

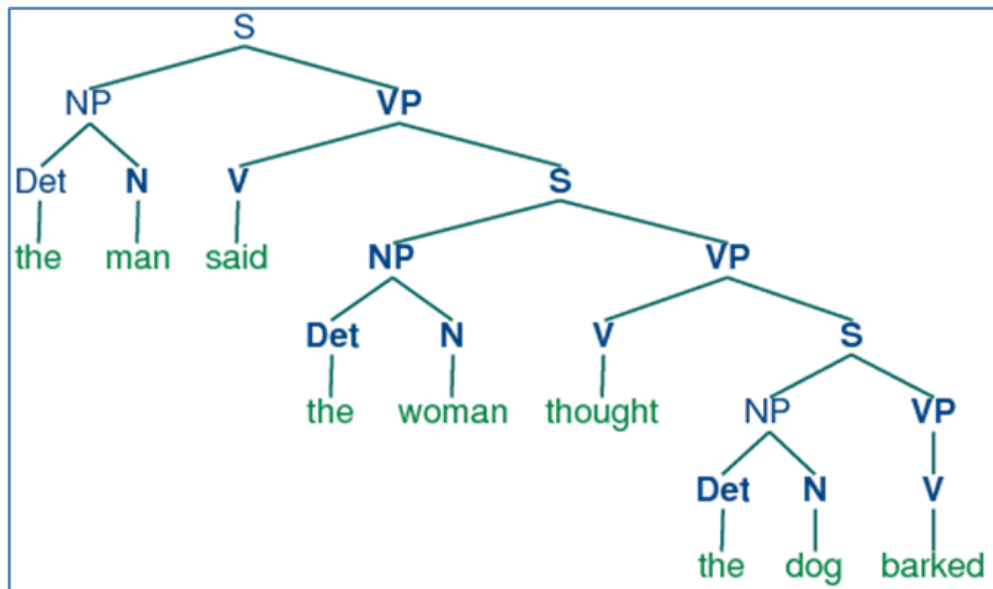


Figure-2. An example of a parse tree showing the syntactic structure of a sentence.

The following examples show that two sentences look almost the same but their syntactic structures are different.

The policeman shoots the man with a knife.

The policeman shoots the man with a gun.

It is possible for a whole sentence to be interpreted differently based on two or more syntactic structures. Sometimes, a single word may have two or more syntactic roles like the following examples. The word “flies” can be a verb or a noun, while the word “like” can be a verb or an adverb. These show a syntactical ambiguity that is a difficult feature of natural languages. This makes it hard for a computer to understand the sentence correctly.

Time flies like an arrow.

Fruit flies like an apple

The second technique is semantic analysis that is to comprehend the meaning conveyed by a text (Ikemoto, Asawavetvutt, Kuwabara, & Huang, 2018). This is a difficult aspect of natural language processing because usually a word may carry two or more word senses (or meanings). For example, the word “base” carries different word senses in various subjects such as military, mathematics, chemistry, and sports. The meaning of a word is also context dependent. For example, a word “sorry” may be apologetic, regretful, remorseful and sad. Thus, word sense disambiguation is a barrier for computer to processing of a text accurately. Another problem in semantic analysis is the named entity recognition that identifies parts of a text that can be categorized into preset groups. Typical examples are proper nouns such as names of places and people. If a name is not registered in the database for recognition in advance, a computer cannot identify it and process the whole text appropriately.

Without natural language processing, chatbots cannot meaningfully differentiate between the users’ responses “goodbye” and “hello”. Natural language processing helps chatbots to understand users’ messages and react properly. When a user sends a message with “hello”, natural language processing helps chatbots to understand that this is a standard greeting and leverage its artificial intelligence abilities to come up with a suitable response. It is likely that chatbots will likely respond with a greeting in this case (Khatri et al., 2018).

Users may produce emotional statements in various ways. Consumers may generate a huge amount of unstructured and versatile content from social media. Chatbots may help to understand ideas behind queries, comments, inputs and reviews of consumers. This helps to know how users’ feeling about services and brands of a company. However, it is hard to make chatbots interpret these emotional expressions with syntactic and semantic analyses. Chatbots without natural language processing depend mainly on pre-fed stationary knowledge but are naturally less equipped to manage human languages with variations in sentiments, emotions and intent.

One of the chatbots’ applications is to replace customer service agents and automate the customer service support. Users prefer instant responses and solutions for their queries (Mahendiran, 2018). Faster responses help to build consumers trust, and thus more businesses and sales. The lack of efficient natural language processing capability may become a critical problem to the adoption of the chatbots in e-commerce (see Figure 3), and this problem can be alleviated by conversational interfaces that are user interfaces interacting users with graphical elements like menus, buttons and images. For example, in Figure 4, the chatbot provides menus of options for selection. Natural language processing focuses on understanding what users say, while conversational interfaces put emphasis on providing personalized experiences to users. The conversational interfaces aim to keep an ongoing conversation between the chatbots and the user. The user would feel like talking to somebody who can understand what he/she is saying.

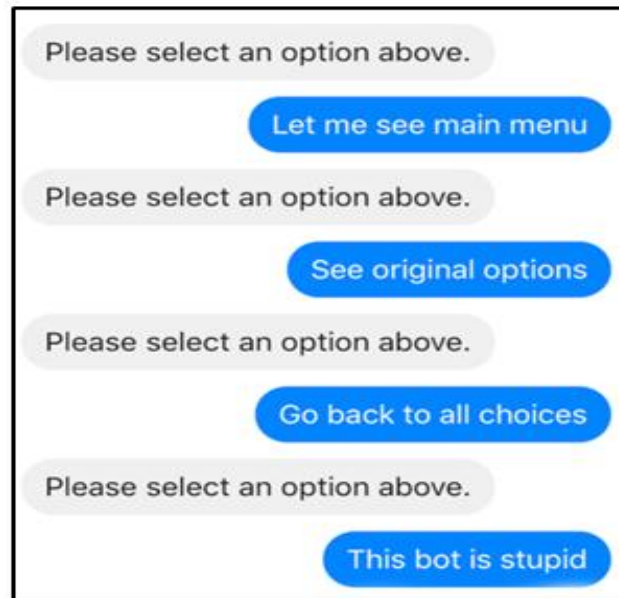


Figure-3. An example of a chatbot with poor performance of natural language processing.

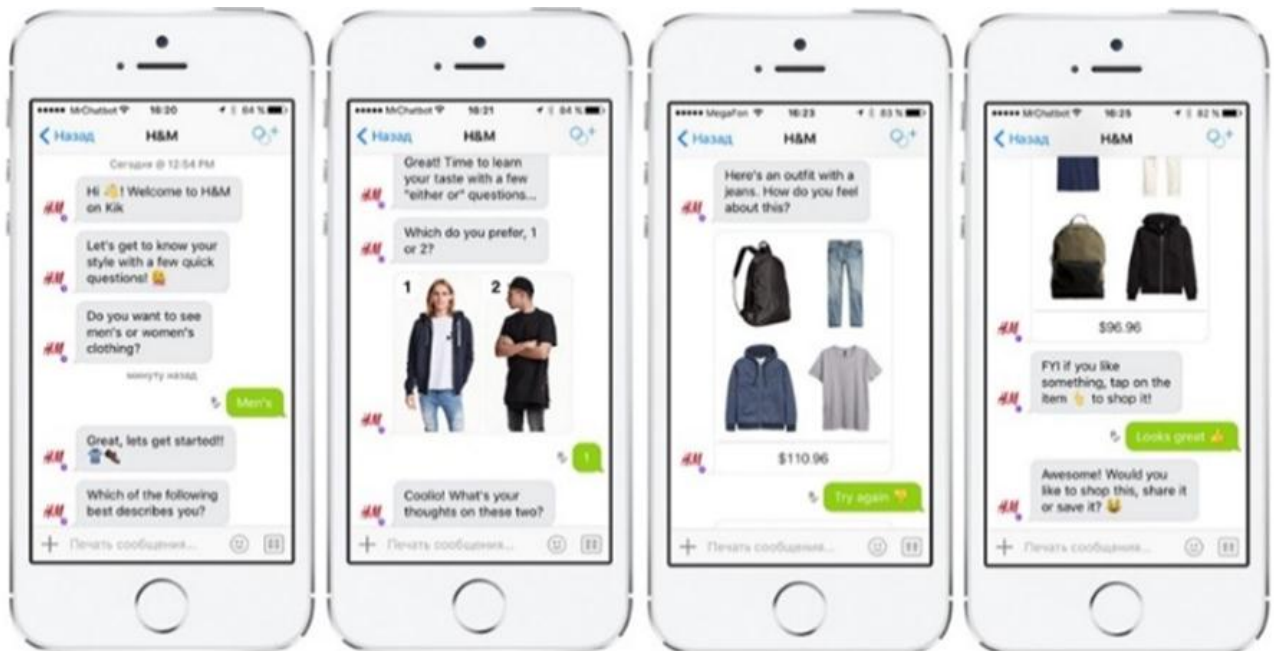


Figure-4. An example of a chatbot with conversational interface.

Source: House of Bots (2018).

2.3. Customer Experience on Chatbots

In reality, most commercial chatbots operate with a hybrid mode in which they use both natural language processing and conversational interface to offer the best customer experience (Fryer, Ainley, Thompson, Gibson, & Sherlock, 2017). While service provided by live customer support chats is part of the customer experience, it is worthwhile to investigate whether the hybrid operation mode of chatbots is suitable for consumers. Do customers care about if they can use natural languages to communicate with a computer? Do they prefer a frictionless experience offered by conversational interfaces after making their request? Do customers find chatbots useful and easy to use? Customer experience refers to a set of user perceptions and responses resulting from the use of a product, system, and service. This study aims to examine customer experience on chatbots by comparing customer expectation and perception on chatbots usage and performance.

2.4. Customer Attitude Towards Chatbots

Customer Acceptance of Technology model, a unified theory of technology acceptance, posits that cognitive determinants, including perceived usefulness, perceived ease-of-use and perceived helpfulness, are associated with consumers' attitude towards the adoption of a technology. It also posits that consumer attitude has impact on consumers' adoption intention. This study drawn on the premises of Customer Acceptance of Technology model for measuring consumer attitude towards chatbots in dimensions of perceived usefulness, perceived ease-of-use and perceived helpfulness. Perceived usefulness refers to the extent to which the user think chatbots enhance his or her

productivity. While perceived usefulness determines technology acceptance, it has a positive impact on consumer's experiences with a brand and his or her attitudes toward new technology. Perceived ease-of-use refers to the extent to which the user thinks the application of chatbots is simple and easy to use. Prior studies indicated that ease-of-use is a critical factor in determining attitudinal consumer responses, such as attitude toward online shopping and social networking sites. Perceived helpfulness refers to the extent to which user thinks the responses of the chatbots address his or her needs for information. For most of the customers, it is very important to be able to communicate with marketing organization on online platforms to get personal assistance regarding their questions, inquiries, and complaints. Natural language processing ability of chatbots play an important role in understanding users' messages and provide appropriate and relevant answers accordingly. Previous studies revealed that an increase in perceived helpfulness will lead to more positive attitude towards online services.

Table-1. The respondents' attitudes to the performance of chatbots.

Question		Mean of Actual Performance	Mean of Expected Performance	t-test result (significantly difference at alpha = 0.05)
Perceived ease-of-use				
1	How is it easy to use chatbots of online shopping websites?	3.55	3.92	Yes
2	How is it easy to learn to use chatbots of online shopping websites?	3.73	3.99	Yes
3	How is it easy to find what you want with chatbots of online shopping websites?	3.36	3.78	Yes
4	How is it easy to become skillful at using chatbots of online shopping websites?	3.47	3.72	Yes
5	How is it easier to compare products when using chatbots of shopping websites?	3.37	3.60	Yes
6	How do you feel that chatbots of online shopping websites are flexible to interact with?	3.24	3.62	Yes
7	How are you able to browse information provided by chatbots of online shopping websites with ease?	3.46	3.76	Yes
Perceived usefulness				
8	How are you able to accomplish your shopping goals more quickly when you use chatbots?	3.36	3.68	Yes
9	How are you able to improve your online shopping performance when you use chatbots (e.g. save time or money)?	3.32	3.71	Yes
10	How are you able to increase your online shopping productivity when you use chatbots (e.g. make purchase decisions or find product information within the shortest time frame)?	3.35	3.61	Yes
11	How are you able to increase your online shopping effectiveness when you use chatbots (e.g. get the best deal or find the most information about a product)?	3.41	3.78	Yes
12	How are chatbots of online shopping websites useful in aiding my purchase decisions?	3.27	3.55	Yes
13	How are chatbots of online shopping websites able to improve your purchase decisions?	3.15	3.57	Yes
14	How is it easier for you to satisfy your needs with chatbots of online shopping websites?	3.24	3.68	Yes
Capability of natural language processing				
15	How are chatbots' capabilities of human language processing (e.g. understanding questions correctly)?	3.21	3.62	Yes
General performance				
16	Chatbots of online shopping websites respond rapidly.	3.81	4.00	Yes
17	Chatbots of online shopping websites respond accurately.	3.18	3.72	Yes
18	Chatbots of online shopping websites respond clearly.	3.34	3.76	Yes
19	Chatbots of online shopping websites respond naturally.	3.32	3.67	Yes
20	Chatbots of online shopping websites respond friendly.	3.67	3.94	Yes
21	Chatbots of online shopping websites respond humorously.	3.07	3.50	Yes

3. RESEARCH METHODOLOGY AND RESULTS

The purpose of this research was to collect and analyze the data about customer expectation and perception of chatbots usage in terms of perceived ease of use, perceived usefulness of the technology, and general performance (Davis, 1985). In addition, the survey collected the data about the reasons for using the chatbots and the preferred ways (i.e. indirect communication with menu of options or direct communication with natural language) of using them.

In the survey, a total of 139 university students were invited to complete a survey with 42 questions in three sections. The first section was to study respondents' attitudes in terms of perceived ease of use, perceived usefulness of the technology and the general performance (see Table 1). Likert scale (with 1=very poor, 2=poor, 3=neutral, 4=good, 5=very good) was used in this section. The major findings are below:

- 1) The means of all the actual performance were between 3.0 (neutral) and 4.0 (good). This suggests that the performance of commercial chatbots were around the average, compared with other artificial intelligence technologies popular in the commercial context.
- 2) In all questions, the means of expected performance were higher than those of the actual performance. T-tests were performed to prove that all the differences were significant. This reflects that respondents had higher expectation on the performance of the commercial chatbots.
- 3) In the questions on the perceived ease-of-use, the respondents found chatbots easy to use and learn the chatbots (i.e. Q1 and Q2 with the highest scores).
- 4) In the questions on the perceived usefulness, the respondents found chatbots able to increase of the effectiveness of online shopping (i.e. Q11 with the highest score).
- 5) In the questions on the general performance, the respondents found chatbots rapidly (i.e. Q16 with the highest score) but relatively they were not very accurate and humorous (i.e. Q17 and Q21 with the lowest scores).

In the second section of the survey, the respondents expressed the reasons why they used chatbots on online shopping websites (see Table 2). Likert scale (with 1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree) was used in this section. The major findings are below.

- 1) Most means of the responses to the questions were above 3.0 (neutral). This reflects that the respondents used chatbots of several reasons at the same time.
- 2) With the highest scores, the most significant reasons were i) being convenient to access (i.e., Q23), ii) providing automatic responses when others are not available (i.e. Q24), and iii) quick answers (i.e. Q37).
- 3) But respondents did not prefer using chatbots when they feel bored (i.e. Q33) or lonely (Q34), and they did not liked to use it to train conversational skills (i.e., Q35).

Table-2. The respondents' reasons for using chatbots.

	Question I use / have used / will use a chatbot because	Mean
22	it is easy to use.	3.54
23	it is convenient to access.	3.83
24	it can provide automatic responses when others are not available.	3.78
25	it is easier to talk to a chatbot than to talk to people about important issues.	2.89
26	it is the default method of a certain customer support.	3.41
27	I can tailor a chatbot to my specific needs.	3.23
28	I like feeling the sense of talking someone when I use it.	3.05
29	it is new and fascinating.	3.29
30	it is entertaining.	3.11
31	it has a sense of humor.	2.98
32	I have questions that might seem simple/stupid to another human.	3.21
33	when I am bored.	2.81
34	when I feel lonely.	2.70
35	I can train my conversational skills.	2.65
36	I can obtain assistance or information.	3.51
37	I can get quick answers.	3.80
38	of curiosity.	3.23

In addition, factor analysis was performed to reduce the number of reasons for using chatbots shown in Table 2 into a fewer number of dimensions. Varimax with Kaiser normalization was used in the rotation method and the rotation converged in seven iterations. The result of factor analysis is presented in Table 3.

As shown in Table 3, four factors are identified from factor analysis as follows.

Factor 1 – Using chatbots for fun

- It is entertaining.
- I have questions that might seem simple/stupid to another human.
- When I am bored.
- When I feel lonely.
- I can train my conversational skills.
- Because of curiosity.

Table-3. Rotated component matrix constructed after factor analysis of reasons for using chatbots.

Items	Component			
	1	2	3	4
Q22			0.578	
Q23				0.568
Q24				0.689
Q25		0.749		
Q26				0.843
Q27		0.689		
Q28		0.736		
Q29				
Q30	0.56	0.556		
Q31		0.625		
Q32	0.676			
Q33	0.853			
Q34	0.815			
Q35	0.554			
Q36			0.733	
Q37			0.79	
Q38	0.767			

Factor 2 – Using chatbots because it works like human and helps specifically

- It is easier to talk to a chatbot than to talk to people about important issues.
- I can tailor a chatbot to my specific needs.
- I like feeling the sense of talking someone when I use it.
- It has a sense of humor.

Factor 3 – Using chatbots because it is easy to get assistance in shopping

- It is easy to use.
- I can obtain assistance or information.
- I can get quick answers.

Factor 4 – Using chatbots because it is convenient to get automatic assistance in shopping

- It is convenient to access.
- It can provide automatic responses when others are not available.
- It is the default method of a certain customer support.

In sum, respondents indicated that they like to use chatbots because they are easy and convenient to obtain assistance for online shopping. In addition, chatbots behave like a human agent, and they can be used for purposes other than shopping and respondents found them entertaining (Araujo, 2018).

In the last section, the respondents were asked to express their attitudes to the ways of communicating with chatbots (see Table 4). Likert scale (with 1=strongly disagree, 2=disagree, 3=neutral, 4=agree, 5=strongly agree) was used in this section. The major findings are below.

- 1) The respondents preferred direct communication with the natural language with chatbots (i.e. Q39), compared with indirect communication with menus of options (i.e., Q40).
- 2) The respondents slightly satisfied with the natural language processing of chatbots (i.e., Q41) and expected further improvement of the natural language processing of chatbots in the future (i.e., Q42).
- 3) These two findings are consistent with the responses to Q15 in Table 1.

Table-4. The respondents' attitudes to the performance of natural language processing of chatbots.

	Question	Mean	t-test result (significantly difference at alpha =0.05)
39	You prefer human languages for communication.	3.99	Yes
40	You prefer menus of options for communication.	3.65	
41	You are satisfied with human language processing of chatbots.	3.55	Yes
42	You expect further improvement of human language processing of chatbots.	4.08	

4. CONCLUSION

Chatbot is computer software that simulates a conversation with human users. Marketers in retail industry are utilizing chatbots to connect with their customers and enhance their online shopping experience (Conick, 2017). They also have potential to substitute the tasks of human agents such as answering consumers' queries, and providing services to consumers. Instead of asking consumers to fill in contact forms, chatbots are able to assist them and give them a sense of interaction with a helpful retailer (Seranmadevi & Kumar, 2018).

Chatbots involve the technology of the natural language processing that is not as simple and easy as traditional data processing (Abdul-Kader & Woods, 2015). The performance of chatbots may not really satisfy the users, while other similar artificial intelligence like virtual personal assistance on smartphones are very common in daily usages. The purpose of this study was to find out whether there is discrepancy between the actual performance and the expected one of the commercial chatbots from the perspective of customers. According to the survey results, the respondents like to use chatbots because they are easy to use and useful and chatbots can provide assistance in online shopping. However, the respondents expected the improvement of the chatbot performance in the future. Besides being easy and convenient to use chatbots, marketers are expected to enrich the feeling of human-like communication and enhance the entertaining features of chatbots.

The survey results also revealed that the respondent preferred chatbot communication with the natural language. However, the cost of development of the effective natural language processing capability is usually high (Thakkar, Raut, Doshi, & Parekh, 2018). The online retail companies may use menus of options to facilitate the communication between the chatbot and the users. The future chatbots should strike a balance between these two ways of communication (Balasudarsun, Sathish, & Gowtham, 2018).

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