Proceeding Book of ***The 6th ICMEM 2021****, 11-13 August 2021, Bandung, Indonesia*
ISBN*: 978-623-92201-2-9*

The Influence of Trust Factors on Customer Motivation to Use Virtual Assistant in Indonesian Telecommunication Company

Stephanie Jeanny*, Nurrani Kusumawati and Arfenia Nita

School of Business and Management, Institut Teknologi Bandung, Indonesia

E-mail address: stephanie_jeanny@sbm-itb.ac.id

Abstract - In this era, the existence of chatbot / virtual assistant as the supporting features of customer service is becoming a trend to improve the service quality for customers. Ironically, there are still few people that use this service due to their distrust and lack of information that makes them unmotivated to use it. Customers prefer to communicate directly with human customer service. Therefore, conducting the research with the objective to identify the factors that influence the user's trust and the influences of trust on customer motivation to use is important. In this study, the author focuses on one of the virtual assistants in Indonesia telecommunication sector which is Veronika (virtual assistant of Telkomsel). By using mixed method, the data is analyzed by using manual coding and PLS-SEM. The results of this study indicate that there are 4 of 7 factors that influence user's trust. Among them are interpretation and advice, human-likeness, security & privacy, and self-presentation. With the results obtained, this study also presents the results that users' trust in virtual assistants can increase customer motivation to use.

Keywords - Chatbot, Customer Motivation, Customer Service, Mixed Method, PLS-SEM, Trust, Telkomsel, Virtual Assistant

I. INTRODUCTION

Technological developments in this era can help companies transform systems that are completely dependent on humans to be assisted and complemented by artificial intelligence [1]. Chatbot / virtual assistants is one example of artificial intelligence. Based on the previous research, it is predicted that by 2020, one quarter of customer service operations around the world will include chatbot as a complementary feature in providing service for the customer [2]. The scope of this research will only be on Veronika, virtual assistant of Telkomsel. Even though this company has provided the feature of chatbot/virtual assistant to make the customer easier, their customers still demand for direct communication with the human customer service. This happened because of distrust and lack of information that makes them unmotivated to use it. Refers to the research background and problem, this research will use two research questions with its objectives. Start with the first objective in order to identify the factors that influence the user's trust in the virtual assistant for customer service by referring to the previous research by [3].

RQ1: What factors are influence user's trust in Veronika, virtual assistant of Telkomsel for customer service?

This research question will refers to the previous study by [3] that stated there are seven factors that influence the trust of the users which are interpretation and advice, human-likeness, professional appearance, self-presentation, security and privacy, brand hosting, and risk. The factors that are used in this research is limited to the previous study [3] without retrieved any new factors. The author will also analyze the influence of a user's trust to its motivation in using virtual assistants according to [2] and [4] by using the second research question.

RQ2: How does the user's trust influence its motivation to use Veronika?

With the objective to identify the influences of user's trust to its motivation in using this feature. Thus, in this research, the author will focus on analyzing the customer motivation to use Veronika, virtual assistant of Telkomsel with the trust factors.

II. LITERATURE REVIEW

This study refers to the previous study by [2], [3], [4], as the study with the virtual assistant as object is quite limited. This study uses to test the influence of seven factors [3] to users' trust in using the virtual assistant. Those factors are:

a. Interpretation and Advice
   The ability of virtual assistant to understand the need and request of the users.
b. Human-Likeness
   The conversation and communication style with its characteristics that are embedded.
c. Self-Presentation
   The ability and limitation of the virtual assistant can represent specifically about what it can do and not.
d. Professional Appearance
   The avatar of the virtual assistant with its unique characteristics
e. Brand Hosting
   The developer behind the creation of the virtual assistant.
f. Security and Privacy
   The privacy of personal information and how the service provider stored and used the user's personal data.
g. Risk
   A probability of failure that cannot be denied in using the virtual assistant in order to solve the customer problems

The decision to choose the trust factor despite the other factors because this factor can be the first stage before the

ISBN*: 978-623-92201-2-9*

customer takes the next action to use this feature. This also becomes a crucial variable that can make the user eager to use and interact with the feature. The other study by [5] show that trust can increase the user's willingness to interact with the new technology. These trust factor is also proved by previous study [2] and [4] in increasing the customer motivation to use the feature of virtual assistant.

III. METHODOLOGY

This research is conducted by using the mixed method research approach starting by using the qualitative in form of semi-structured interview and followed by distributing the online questionnaire. The decision to use mixed method is to make sure the result of qualitative research, which use the limited 10 respondents, by using the quantitative method. These method is suitable for the revalidation process as it collects more respondent's data without any claim on causal relations and more into the degree of factors [4]. The semi-structured interviews are conducted with 10 respondents with the criteria of users that is minimum age of 17 years old, at least three years experiences as the Telkomsel users and know/at least have used its virtual assistant once. The following questions that are used are presented in the table below.

TABLE I
LIST OF INTERVIEW QUESTION DESIGN

No	Question
1	Do you use Telkomsel Providers?
2	Do you know its virtual assistant, Veronika?
3	How do you know Veronika?
4	When was the first time you used Veronika?
5	Why did you choose to use Veronika? For what purpose?
6	How often do you use Veronika? Do you still use Veronika until now?
7	What are the advantages and disadvantages when you use Veronika?
8	Do you trust Veronika as a complementary feature of customer service?
9	What factors drive your trust to Veronika?
10	When you trust Veronika, will you have motivation to use it? What reasons drive you to have motivation in using Veronika?
11	Have you ever recommend your friends/relatives to use Veronika?

The author uses the manual coding to interpret the keyword of the respondents' statement that can be identified into each variable of analysis. After that to revalidate the result of the qualitative research, the author begins with developing a conceptual framework and hypothesis that will be used in this research.

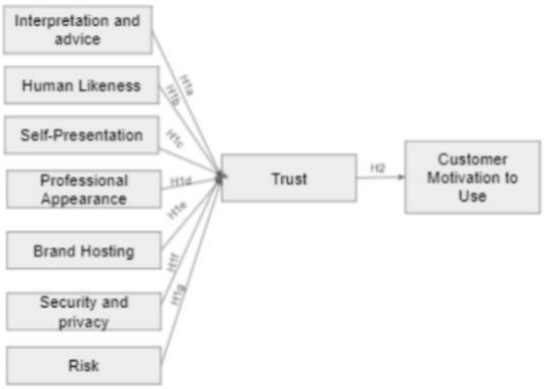

Fig. 1. Conceptual Framework.
Source: (Følstad & Skjuve, 2019) & (Nordheim, 2018) & (Følstad et. al., 2018)

The following hypotheses below will be the basis in creating the online questionnaire. The first hypothesis (H1a-H1g) will be about the identification of factors that influence the users trust (T0) to use the virtual assistant.

H1a: Interpretation and Advice (IA) has significant influence on the user's trust to virtual assistant
H1b: Human Likeness (HL) has significant influence on the user's trust to virtual assistant
H1c: Self-Presentation (SP) has significant influence on the user's trust to virtual assistant
H1d: Professional Appearance (PA) has significant influence on the user's trust to virtual assistant
H1e: Brand Hosting (B0) has significant influence on the user's trust to virtual assistant
H1f: Security and Privacy (PY) has significant influence on the user's trust to virtual assistant
H1g: Risk (R0) has significant influence on the user's trust to virtual assistant
Meanwhile the second hypothesis is about the identification of the influence of Trust (T0) to the customer motivation (CM).
H2: Trust (T0) has significant influence on customer motivation (CM) to use virtual assistant

For the quantitative method, in the study begins to develop some indicator of questions and targets it reaches at least 400 respondents through the Slovin Method. The list of questions that are used in online questionnaire are presented below with all the question for each variable using Likert scale 1-7.

TABLE II
LIST OF QUESTION FOR VARIABLES

Variable	Label	Indicator	References
Trust	T0	It's important that I trust the Veronika app before I use it	[3] & [4]
Interpretation and advice	IA1	I trust Veronika if it can interpret my request accurately and correctly	[3]
	IA2	If Veronika's interpretation is accurate, next time I'll go back to use Veronika again	

***ISBN**: 978-623-92201-2-9*

Human-Likeness	HL1	Language and communication style of Veronika is clear and suitable	[3]
	HL2	Similarity characteristics of Veronika and Customer Service	
	HL4	Increase trust to Veronika according to similarity with Human	
Self-Presentation	SP1	Important for me to know about Veronika's service capacity and limitation	[3]
	SP2	Trust due to Self-Presentation of Veronika	
Professional Appearance	PA1	Importance of Veronika's avatar	
	PA2	Importance of Veronika's adequate and correct language	[4]
	PA3	Trust due to Professional Appearance of Veronika	[3]
Brand Hosting	B01	Important for me to know brand hosting/ developer of Veronika	
	B02	Trust due to Brand Hosting/developer of Veronika	
Security and Privacy	PY1	Feel secure and private while using Veronika	[3]
	PY2	Trust due to Security and Privacy of Veronika	
Risk	R01	I am okay and understand if Veronika has risk to not solve my problem	
	R02	I am trust Veronika even it associated with perceived risk	
Customer Motivation	CM1	I have motivation to use Veronika, if I trust Veronika	[2]
	CM2	Higher trust, higher motivation to use Veronika	

Then the data will be analyzed by using PLS-SEM through the Smart PLS application to measure the reliability and validity test. Followed by the process to identify the accepted and rejected hypotheses.

IV. RESULTS

Based on the result of the interview with ten following respondents, it obtains that the variables found are the same as those found by the previous study [3], which are interpretation and advice, human-likeness, self-presentation, professional appearance, brand, security and privacy, and also risk. Most of the respondents stated the variable of interpretation and advice as one of the most common variables that should be embedded in the virtual assistant. Meanwhile for the variable of brand hosting, only one of them specifically mentioned it as it might be because the brand hosting/developer are quite unfamiliar for those 10 respondents. Then, the result will be revalidated by using the online questionnaire with 405 respondents and analyzed by PLS-SEM in the SmartPLS application. According to [6], this following model passed the reliability test as the outer loading is higher than 0.7. Then it also passed the validity and collinearity test that all the AVE score has greater than 0.5 and VIF value is 5 or lower respectively. As this model passed the reliability and validity test through the PLS Algorithm process, this research can be stated as reliable and valid.

TABLE III
RELIABILITY AND VALIDITY RESULT

Indicator	Outer Loading	AVE	VIF value
T0	1.000	1.000	1.000
IA1	0.935	0.822	1.734
IA2	0.878		1.734
HL1	0.808	0.635	1.287
HL2	0.822		1.786
HL4	0.760		1.551
SP1	0.919	0.842	1.882
SP2	0.916		1.882
PA1	0.742	0.676	1.388
PA2	0.801		1.690
PA3	0.914		2.006
B01	0.920	0.861	2.099
B02	0.937		2.099
PY1	0.873	0.819	1.716
PY2	0.936		1.716
R01	0.897	0.742	1.314
R02	0.824		1.314
CM1	0.935	0.871	2.228
CM2	0.932		2.228

Reliability also can defined when the result of the qualitative data is consistent with the result of quantitative data. In this study, the result is quite consistent between the results of both method. For example is interpretation and advice, the result between the qualitative and quantitative is consistent as both of them show that this variable is familiar and can increase the trust of the users. Meanwhile for brand hosting, as most of 10 of respondents is unfamiliar with the term of developer/brand hosting. It is also show the same in the result of hypothesis testing. The deeper explanation will be described by using the result of bootstrapping to test each of the hypotheses.

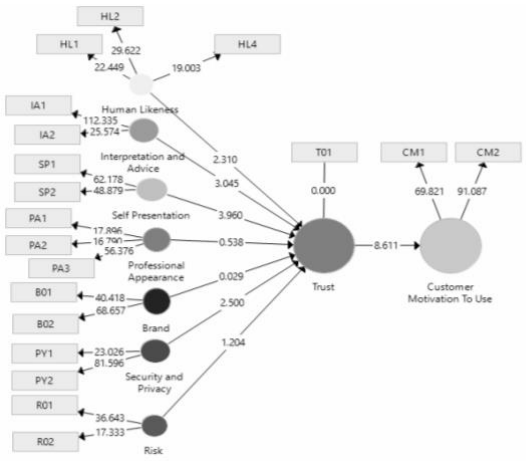

Fig.2. Bootstrapping Result

Followed by bootstrapping analysis in order to evaluate hypothesis relationships. From the result of these analysis,

ISBN*: 978-623-92201-2-9*

in order to determine whether the hypothesis is accepted or rejected. The requirement in the bootstrapping analysis is the T-values is greater than 1.96 to make it stated as significance and p-values is less than 0.05. The result is shown in the following table.

TABLE IV
BOOTSTRAPPING RESULT

Hypothesis	T-values	P-values	Result
H1a	3.045	0.003	Accepted
H1b	2.310	0.020	Accepted
H1c	3.960	0.000	Accepted
H1d	0.538	0.587	Rejected
H1e	0.029	0.977	Rejected
H1f	2.500	0.012	Accepted
H1g	1.204	0.231	Rejected
H2	8.611	0.000	Accepted

From 8 hypotheses that are analyzed in this study, there are 5 hypotheses that are accepted. Each of them are interpretation and advice, human-likeness, self-presentation, security and privacy that have a significant influence to the user's trust to use a virtual assistant. While the fifth is the relationship between trust and customer motivation. All of them are qualified through the requirements which are T-Values> 1.96 and P-Values <0.05. However, there are 3 hypotheses that are rejected which are professional appearance, brand, and risk that have an insignificant influence to the user's trust to use a virtual assistant.

IV. DISCUSSION

Hypothesis 1a. Interpretation and Advice (IA) has significant influence on the user's Trust (T0) to virtual assistant.

The result of the interview shows 8 of 10 respondents perceived this factor as important. Through the quantitative approach, it also showed significant influence. Thus, it proved the previous research [3] and [7] that the ability of a virtual assistant/chatbot to interpret and bring relevant answers can bring them to trust this feature. Refers to the condition of Veronika in the current situation, the ability of interpretation and advice has been quite successful as Telkomsel has provided the keywords to connect with the request and needs of the customers. Telkomsel also perceived the importance in providing the information about the location of the Grapari near to the location of the users and connect the users to Caroline officers while Veronika cannot solve the complaints.

Hypothesis 1b. Human Likeness (L) has significant influence on the user's Trust (T0) to virtual assistant.

Through the interview, only 2 of 10 participants clearly stated that the similarity between human customer service and virtual assistant is important. For the result of quantitative, it is consistent with the previous research from [3] and [9], that more indifference and similarity between chatbot/virtual assistant and human customer service can increase the trust of the users to use this complementary feature of customer service. In the Telkomsel current situation, Veronika has appeared with the understandable and simple communication style, even simple than the human customer service itself. Supported by the text-based service, it makes some of the users more comfortable in interacting with Veronika.

Hypothesis 1c. Self-Presentation (SP) has significant influence on the user's Trust (T0) to virtual assistant

Half of 10 respondents perceived it is necessary for them to get information about the ability and limitations. These results indicated that self-presentation has a significant influence toward the trust of users. This result is consistent with the previous research by [3] and [8] in order to keep the user's expectation by clearly open and honest with the ability and limitation of the virtual assistant. Refers to the current condition of Veronika's users, as the virtual assistant of Telkomsel, the effort to introduce the ability of Veronika is quite sufficient meanwhile for the inability, Telkomsel might be need to re-explain to user so they will not misunderstanding and use Veronika based on its capacity. The process to reexplain might be by utilized the Telkomsel's social media by creating the contents that described that Veronika is also connected and integrated with Telkomsel Call Center (Caroline officer) in solving the complex problem that Veronika cannot do.

H1d: Professional Appearance (PA) has significant influence on the user's trust to virtual assistant

Only 4 of 10 participants clearly stated that these variables can make them put more trust in this feature. However, it is rejected by its p-values and T-values calculation. The previous research by [2] also presents that only two of 24 participants perceived professional appearance, which is an avatar and adequate language as the important aspect in order to increase their trust. Meanwhile for the side of the Telkomsel itself, Telkomsel has done a great effort to make Veronika eye-catching and can represented the main colour of Telkomsel. In the special occasion, Veronika also appear with special attributes such as at the moment of Eid Al-Fitr. In future, the effort to make the indicators of questions need to be improved as it might be some of the respondents misunderstanding about this indicators that make this hypothesis rejected.

H1e: Brand Hosting (B0) has significant influence on the user's trust to virtual assistant

Brand hosting, is quite unfamiliar for some respondents. Only one of them stated that this variable is important but it is also based on its level of technology knowledge. The

ISBN*: 978-623-92201-2-9*

result of the quantitative test also shows that the brand hosting is rejected in enhancing the trust of the users. It is inconsistent with the previous research by [3]. This might be because of different levels of the respondents' understanding with the previous study and also there might be because of the limitation about the chatbot technology literacy of the user. Refers to the current condition of Veronika, with Kata.ai as the developer of Veronika. Meanwhile for some of the users, they might not care about the developers that develop this features as well as they can use this smoothly. It becomes sufficient for them, but for the people with the background and interest with technology. They might perceived brand hosting as a critical point of view.

H1f: Security and Privacy (PY) has significant influence on the user's trust to virtual assistant

For most of the respondents, this variable is really important to influence their trust. This also reflected on the result of the interview and quantitative method. It also proved the previous research that perceived this variable is important [3] as most of the user perceived guarantee and privacy is really crucial while using the service feature. Refers to the current condition of Telkomsel, the security and privacy for Veronika is quite guaranteed because of the verification code that appears if used Veronika in the some channels except for MyTelkomsel application.

H1g: Risk (R0) has significant influence on the user's trust to virtual assistant

By understanding the risk that is embedded in the virtual assistant, 3 of 10 respondents think that they can put more trust. However on the revalidated process, the result stated that it is rejected. The result is inconsistent with the previous study by [3] that determined perceived risk associated with using the chatbot/virtual assistant especially for the sensitive case during the communication can also have influence on the trust of the user.

Refers to the current situation of Veronika due to the availability of the term and condition in using Veronika as there are some risk embedded in Veronika such as the failure in solving the problem of the users, meanwhile Veronika will connect the users with the human customer service to help and solving the problems. In this research, specifically after identifying the answer of the respondents, there are some misunderstanding of the users about the indicators of the risk. It becomes one of the reason about why this hypothesis is rejected

H2: Trust (T0) has significant influence on customer motivation (CM) to use virtual assistant

The process of analyzing the hypothesis about the relationship between trust and customer motivation is only through the quantitative method. The result stated that trust can significantly influence customer motivation. This is also supported by the previous research by [2] and [4] stated that trust can influence the motivation of the customers to use chatbots. From the point of view of the company based on the research on website and interview with the representatives of the customer service, it also shows that Telkomsel is in the phase to introduce and educate their customers about the features of virtual assistant to make them put in trust and finally motivate to use this feature when they are facing any problems or needs of information. The role of human customer service is also critical by informing the users that keep commented through the feed of Telkomsel's post to directly help by Veronika. Therefore this hypothesis is considered as accepted.

V. CONCLUSION

This research is obtained by using the mixed method which started by using the qualitative and continued by the quantitative method. The function of the semi-structured interview is to examine whether those seven factors are same or not due to the study of [3] with these respective object. It is found those variables are similar with the retrieved factor of the previous research. After revalidating using the quantitative method, it can be concluded that only 4 of 7 trust factors have significant influence on the user's trust in the Veronika, virtual assistant of Telkomsel. The first factor is the ability of interpreting and giving advice that can increase the user's trust. Then, the similarity of the virtual assistant and human customer service that is still in the phase of continuous development is also becoming one of the factors that give impact to encourage the user to trust this AI feature. Third, the information of ability and limitation of the virtual assistant that is embedded in the self-presentation factor also becomes crucial in order to increase the user's trust by keeping their expectation of this feature. The last factor that also contributed to increasing the trust of the users is security and privacy while using the virtual assistant that is perceived as important by the users. These 4 factors can be the main consideration variable for the company that want to implement virtual assistant. After identifying the variables that influence the trust of the users, then followed by trust and customer motivation to use this feature shows that trust can increase its motivation to use the virtual assistant. However, the process to educate the users to trust and have motivation to use took a long process and time. It can be seen that the respective company that is the object of this research is also still in the phase of educating their customers in order to introduce and make the customer understand. Seeing the opportunity of the implication of the virtual assistant in the future as the complement of the human customer service. The effort of educating and introducing the customer about the virtual assistant will be beneficial in the long term. This feature also can be considered by the other brand/company/sector as one of the digital marketing technologies that can make the work-life of the human customer service more productive and impactful. In this research only focuses on the seven factors by [3], that influences trust of the customer. However, for the theoretical implication, it is still necessary to develop some new factors that can also contribute to increasing the trust of the users to use the virtual assistant, which will later have influences in their motivation and loyalty to use the virtual assistant as the

complement of the human customer service. As in this study, the author only limited the factors based on the previous study that being chosen even some of the respondents also stated some new factors. The opportunity to analyze the other factors besides the trust factors and customer motivation also still have high chances due to the study of chatbot, still limited and unfamiliar. The future research also can adopt the other factors to measure the customer motivation to use chatbot such as the variables of acceptance, level of technology of chatbot literacy, productivity of the chatbot, efficiency, and many other variables. Then for the quantitative method, it is difficult to find a sample of questions in order to make the questionnaire make some of the indicators not quite understandable. This also because the previous research only implemented the example of the question to conduct the exploratory research in the form of semi-structured interview and Focus Group Discussion (FGD). The mistake in creating the number of the indicators also contribute to the result of this research, therefore the recommendation for the future research is to make at the minimum of 3 indicators of question for each variables to reduce the mistake and closely meet the objective. For the conceptual framework, it is still possible to use other factors or research models that can be continued until analyzing the customer experience/ customer loyalty/ customer satisfaction through quantitative methods by using the online questionnaire. For the managerial implications, Telkomsel have to continuously develop in introducing and educating the customers about Veronika, the virtual assistant to make them trust and then have motivation to use this feature. Telkomsel can take the opportunity to use the social media with the attractive content and marketing strategy to make the users more familiar with Veronika. The effort of customer service also become criticial to introduce Veronika for the users as it also already run in the Instagram @telkomsel to suggest the user to use Veronika. For the future research also suggest to add the experimental method, which can be used to study 2 or more brands that have already adopted virtual assistants, it can be in the same sector or compare the implementation between different sectors. Therefore, it is undeniable that in the future, this virtual assistant technology will definitely be used. It is important to take the opportunity to analyze this feature more broadly.

REFERENCES

[1] Yanuar, Victor. “Chatbot versus Customer Service”, 2018. https://blog.excellence.asia/2018/04/25/chatbot-atau-customer-service-mana-yang-kamu-pilih/

[2] Følstad, Asbjørn & Skjuve, Marita. “Chatbots for Customer Service: User Experience and Motivation”, in Proceedings of the International Conference on Conversational User Interfaces (CUI 2019). ACM, New York, NY, USA, 9 pages., 2019. https://doi.org/10.1145/3342775.3342784

[3] Følstad, A. & Nordheim, C. & Bjørkli,C. “ What Makes Users Trust a Chatbot for Customer Services? Exploratory Interview Study (Published Conference Proceedings Paper Style)”, presented at the *5th International Conference on Internet Science - INSCI 2018,* St. Petersburg, Russia, 2018 http://dx.doi.org/10.1007/978-3-030-01437-7_16

[4] Nordheim, C.B. “Trust in Chatbots For Customer Service (Thesis or Dissertation style)”, Psychology Program, University of Oslo, 2018. Available on https://www.duo.uio.no/bitstream/handle/10852/63498/1/CecilieBertinussenNordheim_masteroppgaveV18.pdf

[5] Corritore, C. L., Kracher, B., Wiedenbeck, S. ”On-line Trust : concepts, evolving themes, a model”. International Journal of Human-Computer Studies 58(6), 737-758, 2003. https://doi.org/10.1016/S1071-5819(03)00041-7

[6] Wong, K.K. “Partial Least Square Structural Equation Modeling (PLS-SEM) Techniques Using SmartPLS*”,* Marketing Bulletin, 24 (1), 1-32, *2013.* https://www.researchgate.net/publication/268449353_Partial_least_square_structural_equation_modeling_PLS-SEM_techniques_using_SmartPLS

[7] Kvale K., Sell O.A., Hodnebrog S., Følstad A. “Improving Conversations: Lessons Learnt from Manual Analysis of Chatbot Dialogues”, in: Følstad A. et al. (eds) Chatbot Research and Design. CONVERSATIONS 2019. Lecture Notes in Computer Science, vol 11970. Springer, Cham, 2020. https://doi.org/10.1007/978-3-030-39540-7_13

[8] Vishal. “What Are The Limitation of Chatbots and Their Future Scopre?”, 2019. Available on https://www.smatbot.com/blog/what-are-the-limitations-of-chatbots

[9] Heyselaar E., Bosse T. “Using Theory of Mind to Assess Users’ Sense of Agency in Social Chatbots”, in: Følstad A. et al. (eds) Chatbot Research and Design. CONVERSATIONS 2019. Lecture Notes in Computer Science, vol 11970. Springer, Cham, 2020. https://doi.org/10.1007/978-3-030-39540-7_11