#### Summary

#### **Capstone Project**

# **Timely Communication**

Over the last few years, because of the immense growth of content on the internet, the ways people interact with this content has been changing. Also the oppurtunities of advertising has increased and changed in many different forms, also because of this growth. For example from the single banner advertisement to remarketing campaigns with google and facebook. As a business, being able to properly communicate the essentials of your business, either if we are talking about a single product, or a service, has become more and more challanging because of these changes. Just to start off, we are going to talk about several ways that businesses try to communicate the exact details of their service or product. We will talk about how effective, and cost effective these different forms are, and choose a specific form (chat) for a business and analyze the the retrieved data from this form

Several types of communication channels or Techniques

- A) Email
- B) SMS
- C) UX design
- D) Chat

When we are talking about emails, one of the oldest type of communication on the internet, is a challenging task. At the beginning of when the internet came in, Emails were considered a trend, and everybody was happy to get one. Here just to take a small break to explain what open percentage is. It is the percent of emails that a company sends out, that the given target group opens. Now going back, in the beginning when Emails were trends, the open percentage was very high. In some given situations, reached even between 50 to 70%. In modern times, companies, with mass email databases, are lucky to even get 8 to 10%. Most of the small businesses are not even able to measure this because of the lack of funds or personal. Unfortunately the big email providers do measure the amount of spam a given company sends out, and therefore a company could be penalized without even knowing it. I could go into much detail, how an email can be modified or changed to increase the open percentage, but this project is not about emails. What should be said, is that going to this type of project concerning emails is very expensive for a business, and they must have the technical backround.

To give a brief description about the SMS service. A person gives his personal data in a given form, it could be from a purchase, or some other way the company acquired it (Of course the person must give their personal consent to handle this data). They then use this phone number to send out different information about their business. The open percentage of such a service is pretty high, in modern times, could even reach the 75 to 90 percent. The problem here is that the technical backround and the personal again. The company must be able measure the amount of success from a given SMS, then appropriately change or modify the SMS in every campaingn. This form of communication is very expensive, and people also find it intrusive.

Next would be the UX design. This is a type of design, for their online content, that accomodates the company's content the best, to their given target group. UX design is a totally different field. It is very expensive and requires many different resources. Small and medium sized business owners are unable to afford this type of services. It is one of the most effective ways of communicating the exact details of a product or service. In everyday practice, you may here, that a person was unable to find specific content on a webpage, and left the online content of that specific company. This is a typical example concering the unsucessful display of content to a specific target group.

At last the topic of which this project is about the chat. Many different services are available to offer this service. There are different forms of chats that exist. Two list to basic forms, there is the Active or Passive.

Active: This type of chat form is when the chat window automatically opens when you are on a given website or application

Passive: This type of chat form is when the visitor directly presses on the chat icon.

To talk a little about these chat forms, and different chats the use analytics, automated or manual. The problem with the Active type of chat, is that the given company doesn't know when the chat window should be given to the user. As the visitor constantly encounters different types of advertising forms, the chat window could be considered as an advertisement. So how does a company know that thereshold where the chat window is not treated as an advertisement?

In the passive form of the chat, there are different problems encountered. Here we can start talking about how different generations react to the chat. The younger generations are more willing to discuss their problems or questions in a chat, than the older generations. And because of this, the people who are not willing to actively press on the chat icon, would move onto a different website where the answers to their specific problems is displayed accordingly to their needs. Also another problem with this form is that specific chats, for example facebook display your personal identity to

that given company that has integrated their chat. Many people do not want their personal identity given out.

So we started testing on active form of chat. How can this be more effective, in both increasing the companies goals, and being cost effective at the same time. I gathered data from a specific website, on when people starting interacting with the chat on a given page. Based on the data, I noticed that there are several factors that must be taken into consideratio.

- A) Amount of characters on the webpage
- B) How many pictures on the webpage
- C) What type of webpage.

Based on findings in the data, I was able to create a regression, that increased dramatically the amount of successful chats on a given webpage. What I mean by a successful chat, is the amount of chats that were able to communicate successfully with the user. Based on the different characteristics, the regression taught the system. It was able to automatically set itself in an optimized time window, when the visitor would most likely interact with it, producing a better customer experience, and in the end more sales. In later testing, the source of where the users came from could also be applied.

Vineet Mehta

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The importance of timely communication in the online segment is growing exponentially. Concerning online purchases, if the visitor at a given website does not find the appropriate information to come to an optimal conclusion, the visitor will mostly likely abandon the website. Many online websites suffer from this problem, all the way from the small business owners to the big multi companies. How can a company establish that the given information on their website is sufficient for that particular visitor? Lets look at this from a budget, technical, and target group standpoint.

Do be able to do this, the company must be able to allocate a sufficient budget, which could be used for testing different variations, IT tools, and personal. What I mean by different variations, is that the online website, or application, must be tested on different target groups, which the company has already researched. The technical means are also very complicated. The company must be able to create these different variations or buy some tools that could make these and integrate these changes.. Concerning target groups, the company must be able to establish the right audience for their online presence. Which also takes time resources, and money. Many businesses cannot cope up with these needs.

Due to the issue that many companies have inadequate resources, either personal, IT, or budget, companies have tried to come up with different ways that companies could save on these resources or make their online presence more effective. For example, Facebook has came up with their own chat, in which the answers could be taught. Once these answers are repeatedly given, based on a regression, it will give an appropriate answer with the lowest chance of error. Many of the companies these days, from small business owners to big airline companies use this.



One of the problems with this chat, it can be active or passive. In the passive version, the user must convince him or herself to interact with the chat. A lot of the times, many people will not interact with a chat, because they feel that the question that they have is not appropriate. Especially the user may feel uncomfortable asking a question when they know the company will know their identity. In the active form, the chat comes up by itself after a given time. Most of the time, when a user encounters such a chat, they usually shut the window. They usually do this because of the increased presence of online advertising they encounter, or they have not came up with a question that they need answered. So the problem here, is finding the appropriate thersehold time in which the user will interact with the given window and not mistake it for an online ad. Also the company must make sure that the content of the window is good to that specific target group.

Online retail sales is continuously growing, different services are more available online. Online shopping can be easy in certain industries, like FMCG, where the client is already familiar with the products they want to purchase. However, in case the client wants to purchase electronics or choose the best a private hospital in order to get their illness treated the best, they must

be clearly aware of the possible options available to them. Most probably, some personal content or support will help them to select the most appropriate product or service.

Different forms of communication is available to give the visitor the necessary content to make an appropriate decision on the given product or service. Lets look at several of the possibilities that a company could take, and the advantages and disadvantages of these specific techniques or tools. All of these are based on that the company has traffic on their website, or they have a client database to which they reach out to.

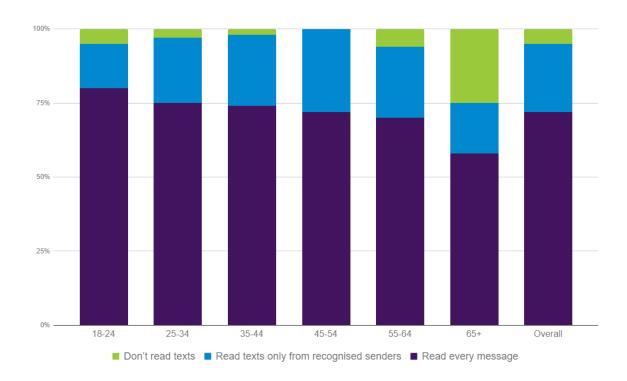
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Lets talk a little about the Email option. It is one of the oldest options of communication on the internet. To this day many of businesses (does not really matter either small or large) do not know how to use this form a communication. When getting emails was a trend, the open percentage of emails, even went as high as 50%. Here to give a brief description as to what is open percentage. It is the percentage of emails sent out by a company that a given target group opens. These target groups are either acquired by opt in or through sales (In both instances, the visitor must give their consent). Going back to the emails, even small companies do not know that there are specific spam filters in different email clients (Google, Microsoft, Yahoo,etc), and that their emails are not even reaching their target group. Even if a percentage of these emails do reach their target group, the email must be presented in a way that is appealing to that given user. In general to accomplish these goals (passing through spam filters and creating appealing content) needs a lot of personel and different tools. Which translates into a higher budget for this. Small companies cannot pay for these, and bigger businesses find it hard to get adequate personel for this.





Next lets talk about the SMS. It is a very effective way of communicating with your target group. Open percentages can go above 75%, of course based on different age groups. The big problems here is the amount of money that has to be put into this, and the personel that could see if the campaign was successful. If the campaign was not successful, and if the visitor repeatedly gets an SMS from the company, they might cancel the service from that phone number.



To talk a little about UX design. This is a design that most effectively communicates the needs of the customers in that specific target group. I could go into a lot of detail in this issue, but will try to stick to the basics. This is a very expensive service. Tools exist to help create different designs for your specific landing pages, but they do not accommodate or change automatically based on your target groups needs. They must be constantly monitored and collaborated. Hiring a team that effectively designs the different landing pages and tests them on the specific target groups is very expensive. For example testing, with adequate data, that your target group reacts better to a red color, than a blue color for the heading of the page. Usually this does not fit in the budget of small and medium sized businesses.

Going back to the chat and the purpose of this project. Proactive customer service is also important for upselling, even if the product is not complex and the client has a clear idea what do they want to purchase. Buyer's remorse is among the top reasons of clients sending back the purchased products. A solution must be provided by the company, such as an oppurtunity to be in personal contact with the support of the given company (Personalised chat, that can

assure them, that they made a good and safe decision). Chances of a product being returned therefore can be decreased dramatically. (Leggett, 2018)

Customer service is straightforward in case of traditional personal sales, however online it is way more difficult to find the appropriate channels and timing in order to enhance the different client experience.

Most websites have a "Contact Us" page, where their phone number, email address, and if relevant physical address is available. Customer can contact the company, if they have any specific question or request. Communication as always initiated by the client.

I believe in the proactive communication initiated by the business itself. Businesses shouldn't wait for the client to ask questions. This should be transformed and companies should go ahead and check if they can help the client to make a purchase or make the visitor more secure with their decision. In the online space, chat pop-ups can be a perfect solution for companies to do proactive sales or provide a helpdesk. In 2017, already 45% of customers already have used online chat. (Leggett, 2018) As compared to the different forms of communication, talked about above, I see that this is the most cost effective, and even small businesses can afford this.

The Y, Z and Alpha generation is the most important target of web-shops. These generations grew up by having easy access to digital information.

Those who were born after 1980 are considered to be the digital generation or digital natives, those who during most of their lifetime had access to internet. Studies make a difference between digital natives and digital immigrants. Digital immigrants learnt to use internet only at a later stage of their lifetime. Similarly to language studies, immigrants, who were study usage of internet later will always have certain accent. Older generation feels better printing materials and read on paper, instead of browsing on the screen by jumping from one site to another. Digital natives feel totally comfortable watching their screen all day long, they haven't got used to read books, news papers and letters on paper as much as the elder generation did. (Hockly, 2011) Similarly to the reading style, younger generation is very familiar with online shopping. They are aware of the most popular international web-shops like Amazon, Alibaba or Wish. They are benefitting and using a lot their opportunities to purchase goods from remote companies. They are less afraid from getting something

inappropriate compared to what they wanted. On one hand, they got used to sending back products they don't like, on the other hand they grew up in a world where the changes are way faster, then how they were before. Products are less valuable for them. Compared to our grandparents who had one TV and one washing machine which was operating over a lifetime perfectly serving their needs, our generation, due to the pressure of consumer society, are less connected to things. Products are not so reliable than before, they are made to serve us only for a short period of time. Also marketing experts and social media is pushing us towards the desire of being cool, so we purchase the things that we believe will make us cool or nice today, and we get rid of things that don't serve this desire anymore. We are changing our cell phones at least every second year, and change majority of our wardrobe for every new season. Due to the globalisation and the internet, new products are known and spread much faster than before. Therefore there are vast and many opportunities for the visitor to choose between different companies.

They go to stores less frequently than the older generations, important part of their purchases are made via web-shops or some type of online platform.

This generation grew up by using different chat applications like MSN, Viber, WhatsApp, Instagram of Facebook messenger, Snapchat and so on. This is their preferred way for communication. They didn't got used to pick up the phone and talk to their friends, instead they got used to text them. Younger generation has mental barriers to pick up the phone and order a pizza, they prefer using digital channels online. Phone usage for customer service is steadily decreasing. (Leggett, Forrester, 2016)

Also a phenomenon of the generation is the speed of getting the information, and the speed of changing things around them. For them it is not ok to get an answer to their email in 1 day. They need immediate answers to their questions or needs. As in this fast changing environment, and due to the rapid flow of the information, the questions we had in the morning are usually irrelevant by the evening. Questions must be answered immediately when they are coming up. "Half of US online adults will abandon their purchase if they cannot find a quick answer to their question." (Leggett, 2018)

Regarding live chat, "an eConsultancy report cites that 79% of customers prefer live chat because it provides immediate support, while Forrester claims that 63% of customers are

more likely to return to a website that offers live chat over one that does not." (Golkar, 2017) "On the sales front, Forrester data reveals that site visitors who use web chat are 2.8x more likely to convert than those that don't. And according to a benchmark study by Bold360 (a LogMeIn company), a buyer who chats will spend 60% more." (Leggett, 2018)

Via live chat clients can be allocated to an agent quickly, who has the relevant skills and knowledge in order to get the client's questions to be answered. Chat can provide a shortcut to the customer compared to annoying interactive voice response (IVR) systems. Via chat applications the questions can be answered real time. Nowadays, the most important asset of a client is their time, therefore customers highly appreciate if a service provider of a product distributor can solve their problems quickly. (Leggett, Forrester, 2016)

Live chat is the most important in case of retail businesses. If we make an analogy between the physical and online sales, it makes very easy to understand the importance of proper customer care. If we enter into a shop, just to look around, or we are looking for a specific product what kind of support do we expect? Usual mistakes are that either the sales staff doesn't ask what are we looking for. Or when we are hesitating to purchase the product we found nobody comes and gives us a confirmation, a final touch, that gives us a good feeling that we are making a good decision. By not providing this proactive service at all businesses are loosing lots of sales opportunities. On the other hand, too pushy sales staff can be also a problem. When we are entering to a shop, and doesn't even have the chance to look around, but the sales person immediately jumps on us asking how can they help, what are we looking for, and they are overly pushy during the time we are in the shop, this can be also scary. Based on my personal experience, the best situation is when I have the chance to look around, a smiling sales person is available, pays attention on what am I doing, and offers their help, just at the right moment, when I start to hesitate or I don't find the product I am looking for. Also, I like when they understand what do I look for, and they offer not just the very product but alternatives and also supplementary product. By doing this talented sales people usually manage to sell more products to me compared to my original goal.

I believe, that the same approach should be applied in case of online sales and helpdesk. When I enter to a web-shop or to the website of a service provider, first I would like to look around, and potentially get some support in order to make my decision. It often happens, that I am looking for something on a site but don't find, or for some reason I am not able to

decide to purchase something and I am leaving the site. In these cases most probably I will never do the purchase on that site, but I will look for another alternative for getting the product. Also, if I enter to a site, and a chat pop-up welcomes me immediately, I usually just close it as I am not there yet to ask questions. Later on by the time I would have questions, I have already forgotten about the opportunity of quick and easy chat support offered by the site.

Just as in case of physical purchases, in the online space the support should come at the right time. This thought gave the basis of my analyses: I believe, that the length of a page massively influences how much time a client needs to look around, and which is the right moment to offer my support. I was analysing success-rate of chat support services based on the amount of characters on a webpage. My assumption is, that the longer the page, the more time we need to give to the customer for analysing individually the service we offer.

Optimizing the schedule of chat invitations is crucial in order to maximise customer satisfaction and engagement. The experience of the customer will determine not just the success of this one-off sales opportunity, but also the future relationship between the business and the client and therefore any potential future purchases.

# **Technical Anaylsis**

Over the last few months I was testing different settings of a chat application of a webshop related to beauty products. I have collected the data and made a regression analyses in order to justify if the volume of the text influences when the chat function is the most successful. My goal is not only the justification, but also the optimization. Based on the regression I have the function which allows me to optimize the pop-up time of the chat window in case of each page of a website. And the more data I have, the better my function will be. By counting the number of characters on a page, I can easily calculate the optimal pop-up time of the chat.

During the analyses chat customer service was available on working days from 7 am till 11 pm. Chat was available in each page of the site. I have changed the chat pop-up period every days, so during the first day of the analyses chat was popping up after 1 second, during the second day after 2 seconds and so on. Highest tested pop-up time was 24 seconds, so the analyses took 24 working days. Above 24 second chat pop-up seems to be less and less used by the customer, therefore I decided to stop at this point the observations.

Different type of pages require different reaction time. I have tried to analyse all the data I had as one database. After analysing it I have realised, that individual pages are outliners, while the chat on the product sales pages are reacting similarly to the change of the amount of characters. For example on unique pages like the "Home page" chat pop-up is the most successful after 40 seconds, "Contact us" page requires 10 second pop-ups, Guarantee page where customer seeks for help requires 3 seconds, School page with lots of technical details require 50 seconds. The typical product pages of the webshop require quite similar treatment, therefore in their case it is worthy to apply regression, and generalise pop-up time function instead of coming up with individual pop-up timing.

Based on the regression I can see that it is usually not successful, if the pop-up chat come immediately, it is rather annoying for the client and they are closing the window immediately

and later on they forget to open chat again. Even if the page has very little text, the visitor needs some time to understand what the page is about.

My analyses covers 378,800 observations. One observation or sample shall mean a chat popup that was successful – meaning that the costumer made some communication via the channel. During my analyses I haven't measure successful sales or customer service results of the chat, this is not in the scope of my study.

My regression shows that even if there is no text in a page, the chat shouldn't pop-up before 1,19437637456505 seconds – this is the intercept value of my regression. Then after each character the pop-up time shall be delayed by 0,00207439459042462 seconds.

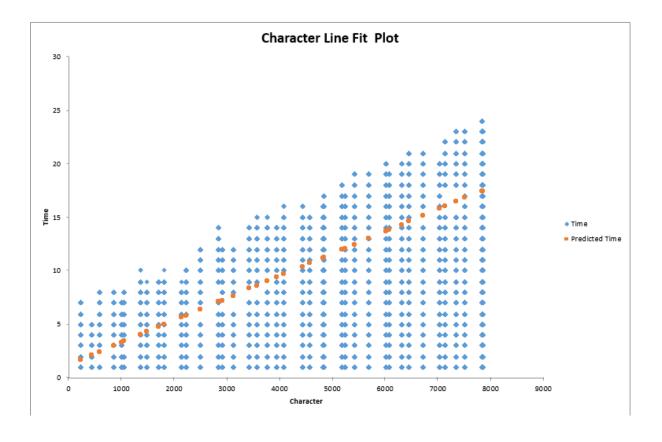
In practice, if I apply my function on some examples:

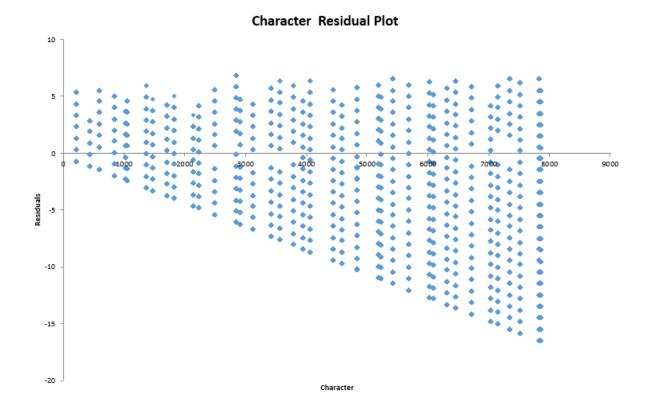
Number of	Applied function	Optimal chat pop-
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site		
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100	1,19437637456505+0,00207439459042462*100	1.40181583
500	1,19437637456505+0,00207439459042462*500	2.23157367
1,000	1,19437637456505+0,00207439459042462*1,000	3.26877096
10,000	1,19437637456505+0,00207439459042462*10,000	21.9383223

My R Square value is 0.736096505649506, which means that 73.61% of the variation in the most successful chat pop-up schedule is explained by the independent variable of the number of characters.

I consider my results to be reliable and statistically significant, as the "Significance F" is way less than 0.05.

I have been also checking the residuals, which is the difference between the predicted Y based on my function and the real Y of the observation. This shows that the longer the text on a page is the bigger the residuals are. I assume the reason is, that if a site has little text, than the customer will leave it early — so I cannot really test if chat pop-up is successful in 15 seconds where the page has 100 characters. In 15 seconds the client have already closed the window. While if a client is looking for something in a page that has more content - several thousands of characters, I can try giving the pop-up in 1 second but also in 15 — I have some chance to be successful in both cases.





My future plan is to extend my analyses, and instead of characters check the interdependence of the amount of sentences and the successful pop-up time of chats.

Also my future plan is to analyse further the correlation of successful chat pop-up rates and the amount of pages and their content related to certain product rage (e.g. some of the product ranges are listed over 10 pages or more, customers are scrolling through the pages basically looking for the same thing. Having the product range splitted in more pages is only a technical solution in order to be user friendly, but regarding the content they belong together.)

Right schedule of chat invitation is not the only factor determining the success of the service. When we launch the service, we also have to pay special attention on the user experience, if the chat is user friendly enough. Important to be visible enough but not to stop the client if they want to continue to browse. Mobile optimisation is also enough as nowadays mobiles are the most important devices that a customer can use in order to get information. (Golkar, 2017)

Friendly and conversational tone is also important. Chat agents should talk in a professional, polite yet natural tone. Messages should be short, not confusing and overwhelming for the client. (Golkar, 2017)

Via chat discussions, it is easy to misunderstand each other, therefore proper and timely provision of information is essential. In case the chat is not accompanied with video, which is the case usually, it is important to keep the client informed about what is happening, what the agent is doing, why he is in silence sometimes. If the agent needs to do something in the background in order to help the client, the client must be informed about the process and about the time it is going to take, so they don't believe that the agent is not there anymore, but understand that he is working on the solution. (Golkar, 2017)

In summary, based on the available options that are given to a given business, the business must be able to choose what fits into their budget or resources. While a Big multi, may be able to afford many different personal and tools, a small company will not even have the knowledge as to what is exactly needed. Given each of these segments, appropriate information must given to the companies to choose the most effective solution for them. Based on testing and cost effectiveness, I can say that the live chat is the most powerful tool

that could help any size business. If the chat is able to encourage the communication between visitor, and company, the better the chances that the user or visitor will achieve the goal set out by the company. Based on this theory we tested, we saw how can the live chat can encourage communication, if the ideal time for the chat to appear for the user is set by different variables. We saw that based on character number, and the type of page it is (for example contact us page, product page, product list, etc.) different times are needed to encourage communication. Once these ideal times were reached for these given types, the user or visitor successfully opened up the communication with the company. Therefore dramatically increasing the chances for the user or visitor to achieve the goal that was set out by the company.

Vineet Mehta

# References

Golkar, G. (2017, June 20). *Vocalcom*. Retrieved from https://www.vocalcom.com/en/blog/customer-experience/6-tips-for-optimizing-the-live-chat-experience/

Esendex UK SMS open rate, 2018

Diamond Nails website

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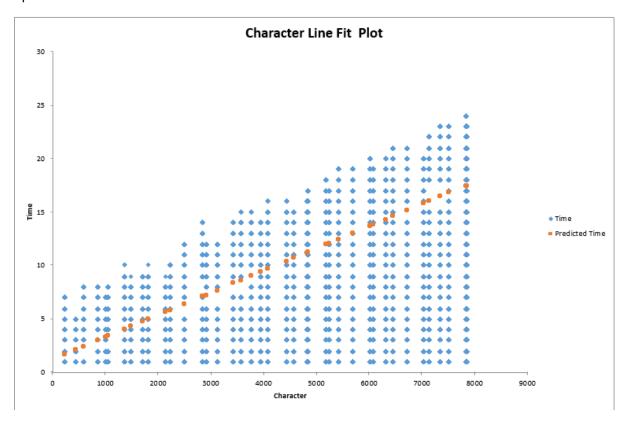
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1,000	1,19437637456505+0,00207439459042462*1,000	3.26877096
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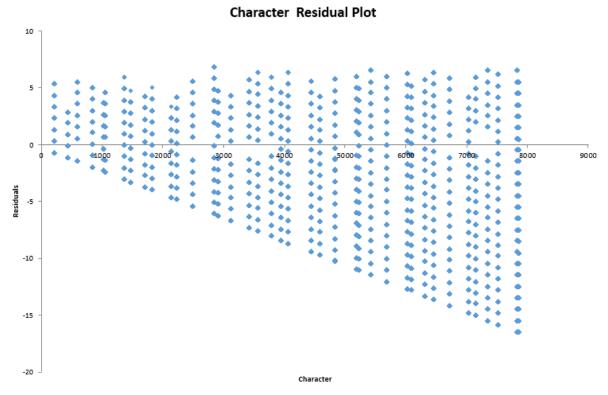
I consider my results to be reliable and statistically significant, as the "Significance F" is way less than 0.05.

I have been also checking the residuals, which is the difference between the predicted Y based on my function and the real Y of the observation. This shows that the longer the text on a page is the bigger the residuals are. I assume the reason is, that if a site has little text, than the customer will leave it early — so I cannot really test if chat pop-up is successful in 15 seconds where the page has 100 characters. In 15 seconds the client have already closed the window. While if a client is looking for something in a page that has more content - several thousands of characters, I can try giving the pop-up in 1 second but also in 15 — I have some chance to be successful in both cases.



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