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Role of Social Moderators

Linkedin, Quantitative Analysis

Highlights

Conducting Territory Segmentation

Members' Behavior and Motivations

Discovering Thoughts, Inventing Future

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The Four Most Crucial Elements of Conducting Territory Segmentation at Scale

By Venketesh Iyer
University of California Berkeley

Abstract- The most fundamental building block of any organization is Data; data is critical to any organization's success. Getting data governance and quality right, can significantly improve the quality of sales planning and result in an intelligent data-driven territory allocation process. On the contrary, poor data quality and loose governance models often lead to laborious territory planning cycles, sub-optimal sales rep to account mapping and poor customer experience. Poor data quality could also result in an over- or under-allocation of a sales person's territory and can result in poor customer experience and even attrition. On the operational side, this could result in poor forecasting, inefficient revenue attribution, tedious reporting exercises (due to lack of data modeling), and a significantly delayed root cause analysis when companies miss financial goals.

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The Four Most Crucial Elements of Conducting Territory Segmentation at Scale

Venketesh Iyer, University of California at Berkeley

Abstract- The most fundamental building block of any organization is Data; data is critical to any organization's success. Getting data governance and quality right, can significantly improve the quality of sales planning and result in an intelligent data-driven territory allocation process. On the contrary, poor data quality and loose governance models often lead to laborious territory planning cycles, sub-optimal sales rep to account mapping and poor customer experience. Poor data quality could also result in an over- or under-allocation of a sales person's territory and can result in poor customer experience and even attrition. On the operational side, this could result in poor forecasting, inefficient revenue attribution, tedious reporting exercises (due to lack of data modeling), and a significantly delayed root cause analysis when companies miss financial goals.

The following set of best practices are written through a lens of data in a CRM environment. The business model that the below strategy best aligns with is B2B direct subscription product sales. The scope of sales territory planning outlined below is limited to certain organizational groups: core and specialist sales teams, sales operations, corporate finance, and any other teams that directly influence sales territory allocation and revenue measurement. While sales have a significant role to play in the curation of the company's GTM strategy—it typically rests within the wheelhouse of sales operations. The revenue and HR organizations contribute heavily to the planning exercise.

The four most crucial elements of conducting territory segmentation at scale are:

I. Identification of the Fundamental Data Attributes That are Reflective of the Company's go-to Market Strategy

Data Quality is a thankless task and a moving target. Data will never be 100% current, and it will very rarely be 100% complete. However, the way one can optimize the completeness and correctness of data is by "scoping" out what's important. Of the hundreds of data points that one could capture about their customer into the CRM, *only a handful matter!* How about the 80-20 rule? Many a time, 20% of the data attributes directly drive 80% of the value.

Every B2B company has a system of record of its customers, i.e., businesses. This exercise entails identifying the core data attributes or fields (in the CRM world) that are integral to the company's GTM strategy. For e.g. a company that sells its product globally, across several industries could have the following attributes of its customer records as building blocks of segmentation:

- Geographical.
- Vertical or Industry or Category of the customer.
- The materiality of the customer to the company.

Employees (reflecting size), Seats/Licenses (in case of a subscription model), Revenue (reflecting business), Deal Pipeline (reflecting potential)

- Product adoption

A handful of leads from multiple groups can come together to form a council and thereby, identify these fundamental building blocks. There could be 1-2 members from finance, 3-4 across the global sales teams, 2-3 sales operations team members, and a few more. A data governance expert could moderate these exercises. *The conclusion of these exercises is a thorough documentation of critically important fields in the form of a data dictionary.*

II. Maximize Completeness and Correctness of the Fundamental Data Attributes to Elevate Trust

Now that one has identified the critical attributes, the next step is to install guardrails around them. There are one or more best practices one can adopt to ensure correctness and completeness of the data.

1. Bring on a small team of business development representatives, junior data analysts, or interns who can scrub the data and maintain accurate information. They could refer to the third party trusted data sources to periodically maintain freshness.
2. Make an investment to procure firmographic business data from trusted data vendors and conduct data cleansing at scale (1-2 times a year) before annual planning
3. Put tight access controls in place on a handful of critical roles that can edit the fundamental attributes in the CRM. Implement these access controls at an attribute level into the CRM with the help of IT.
4. Create a robust intake process for data changes from the sales organization. Provide strict guidelines and detailed procedures to the data support team (BDRs, analysts) who are processing these

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requests—ask for a verified source of truth, or a business justification.
5. Capture every data change.
6. Create dummy fields to capture real-time changes and having fixed fields that are updated only once a year to drive sales territory planning
7. Use a handful of attributes with some automation to compute a 'Health' score. The health score can be constructed using either a simple code that checks completeness of fundamental data fields or the last modified date on a field to reflect recency of an update. If 8 out of 10 critical attributes are populated, record a Completeness Health Score of 80 (scale of 1-100). If the organization refreshes 5 out of the 8 attributes in the last six months, one can record a Recency Health Score score of 62.5 (⅝) to reflect recency.

A graph like the below can be an extremely effective method of monitoring data quality health:



III. Writing Rules to Segment Customers into "Cohorts," on top of this Trusted Data

Doing this for the first time is the hardest! It requires numerous conversations and pilots across the sales organization to build trust that "data" can replace some element of "intuition" in territory segmentation. It requires various permutations and combinations of *choosing the right attributes and choosing the right level.*

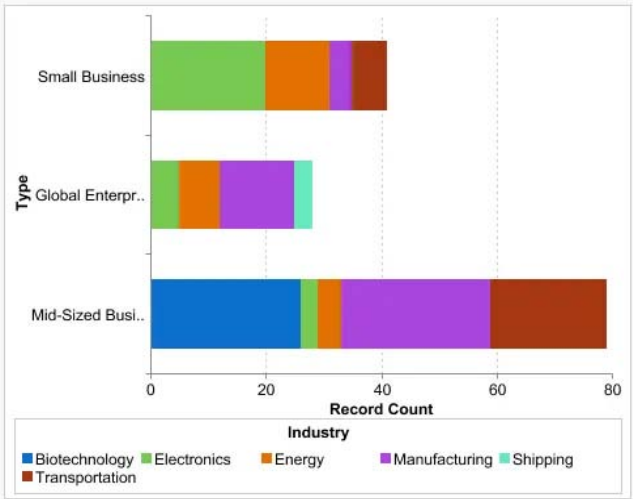
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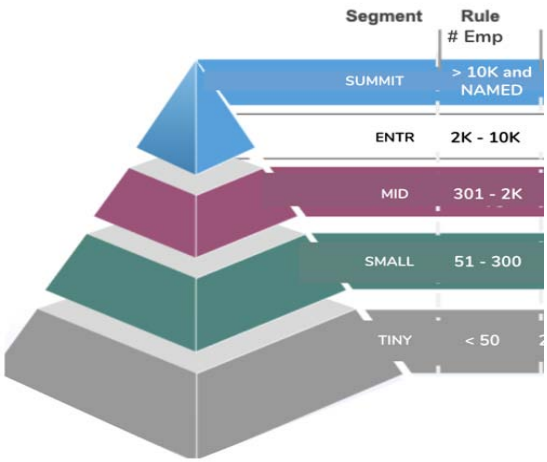
- One can stay high level by creating a *cohort* of a combination of country and revenue size (based on some sizing exercises). E.g.: US-Large Enterprises, UK-Mid Enterprises, India-SMB.
- One can create many granular cohorts with a combination of country, state, employee count (based on some sizing exercises), vertical, sub-vertical, and hero product adoption. Eg: Take a company with three distinct product lines—Pa, Pb, Pc.
  - *CA-Quebec-SMB*- A sales leader is covering the Quebec province for all small businesses.
  - *US-Oregon Washington-Large-Consumer Products-Food-Pa*- A Pa specialist sales representative is covering the large scale Pacific Northwest food industry.

It is very challenging to get this right in the first year and it is an iterative process for subsequent cycles. However, it is extremely efficient in that it will reward the organization in the longer term and get you a step closer towards an efficient sales planning cycle.

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Below is an example of how organizations can categorize CRM data into cohorts and thereby quantify business metrics into these cohorts.





IV. Scalable Automation, i.e. IT Support to Codify These Rules into the System (in this Case, a CRM)

Just as critical as devising the GTM strategy of an organization is, so is the implementation. An IT organization serves as a backbone for sales planning. Primarily there are three facets of IT which shall contribute to an organization's operational excellence:

- *Product (Product Owners, Business Analysts).* This group is primarily responsible for acting as a conduit between engineering and sales operations. Every sophisticated automation essentially calls for constant enhancement, maintenance, and support. In the examples of territory models outlined above, *US-Large Enterprises* calls for much simpler automation infrastructure and routing rules vs *US-Oregon Washington-Large-Consumer Products-Food-Pa,* which calls for advanced routing rules on multiple attributes on a customer record. Typically smaller businesses at a nascent stage with territory planning will opt for a simpler model and gradually mature to a more complex model. This transition requires a significant amount of interaction amongst IT, Sales Operations, Finance, etc. The POs or BAs who have the functional knowledge of both worlds are perfectly positioned to steer these conversations.
- *Engineering (Data and Application, incl. Architects).* A strong IT engineering organization can build and manage the infrastructure, help enhance the complexity and help scale a growing company.
- *Support (Sales Processes, Application, and Data).* Organizations can perceive an immediate ROI with respect to sales excellence when they scale their sales support mechanism. Every time you introduce data-driven territory planning, chances of "nuances" and "exceptions" only rise. A consistent cadence of data quality initiatives and scalable sales support are required to help maintain an accurate map of sales teams with sales territories. Teams can handle such support in the form of tasks/cases. A team of sales support professionals can follow a standard set of protocols to maintain the mapping of sales to customers. These professionals can also support the sales operations organization with:

  - The correctness, completeness, and freshness of data on the system of record— customer records, territory tables, etc. Whenever the sales operations team procures external data for cleansing, the support team is typically tasked to implement those updates.
  - Processing account coverage updates due to employment changes—Promotions, Hiring, Attritions—Employees, Internal transfers, Leave of absence
  - Archival of records or hiding those from the active sales models, i.e. attrited customers
  - Sales coverage can shift due to changes happening to the customer, such as contract change, industry change, customer size change (up-size/down-size); such shifts could result in a re-shuffle of the sales organization managing that customer.
  - Senior leadership strategy. Often there are mid-year changes to a company's priorities based on how the business is performing. During an economic crisis, companies often go into a reactive mode. When a product-market fit-gap is identified, companies could make acquisitions. These organizational changes could have a significant impact on the sales territory coverage. Processing

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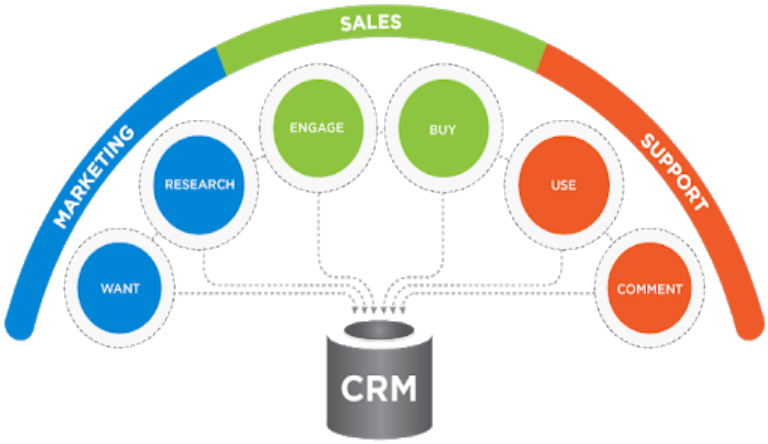
all these changes will require numerous support professionals who maintain the best possible state of the system as business demands.

V. Endnote/Conclusion

The primary focus of a Sales Operations team is to maintain simplicity and momentum for the sales organization. It is critical to keep the sales organizations shielded from any bottlenecks or operational overhead. The larger the company, or the faster the company grows, the more convoluted the sales operations process is. *Complexity can depend on the pricing and packaging model, breadth of product offerings, size of the sales organization, revenue recognition process, approval layers, reporting needs, forecasting needs, and more.*

But everyone (literally everyone) needs to start somewhere, albeit small! Delivering small wins for sales and showcasing the power of a data-driven sales planning process in increments, will gradually bolster trust and pave the way for an organization to scale truly.

Data Quality is a combined effort across multiple facets of an organization; everyone needs to be fully vested into helping the organization attain optimal data quality.



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Linkedin, Quantitative Analysis to Examine Members' Behavior and Motivations

By Mariana Hu & Magdy M. Hussein, PhD

Abstract- Social media is one of the most popular Internet activities nowadays, and not surprisingly, it is at the core of business strategies. One cannot measure the popularity of a social media platform only by the size of its member base but, more importantly, by the number of active users. The higher the number of active users in a social media platform, the higher the potential for future growth and the opportunities to monetize their services. Social media platforms should, therefore, make every effort to encourage more users to be active.

The LinkedIn networking social media plat form is used by 92% of Fortune 500 companies, followed by the two rivals Twitter (88%), and Facebook (85%), 99firms (2019). Despite experiencing significant growth in LinkedIn's membership, the company has not been able to grow its monthly active users beyond 25%, a figure that is relatively low compared to other popular social media like Facebook and Twitter. The small percentage of monthly active users is a thoughtful concern for LinkedIn as it would discourage future growth.

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Mariana Hu [α] & Magdy M. Hussein, PhD [σ]

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The LinkedIn networking social media plat form is used by 92% of Fortune 500 companies, followed by the two rivals Twitter (88%), and Facebook (85%), 99firms (2019). Despite experiencing significant growth in LinkedIn's membership, the company has not been able to grow its monthly active users beyond 25%, a figure that is relatively low compared to other popular social media like Facebook and Twitter. The small percentage of monthly active users is a thoughtful concern for LinkedIn as it would discourage future growth. This 2018 research study examined LinkedIn members' main motivations to use the platform, the demographic and behavioral factors that influence their login frequency to the platform, and elements that will drive higher user activity. An online survey was used as a quantitative and qualitative methodology. The findings of this study suggest that job search and networking are the main motivations to use LinkedIn and that demographic or behavioral factors do not influence login frequency to LinkedIn. It was also found that members who access LinkedIn through computer and mobile applications login more frequently than members who only use one of these channels. Furthermore, evidence was found that the higher the level of motivations to use LinkedIn, the higher the login frequency. The findings will help LinkedIn develop strategies that drive higher user activity and, therefore, monetize their services more effectively.

I. Introduction

One could not imagine life without Facebook status updates, following celebrities' Tweets, sharing funny YouTube videos, and connecting to recruiters on LinkedIn. With an ever-growing number of users and extraordinary engagement power, social media is nowadays one of the most popular Internet activities. In the United States, 81% of the population use social media and spend 3.6 hours per week on social networks via smartphone, 53 minutes via PC, and 50 minutes via tablet devices Number of social media, n. d. There is no doubt that social media had become an integral part of our lives.

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For businesses, this phenomenon has reshaped marketing and become a fundamental core element of business strategy. As a powerful marketing tool, social media provides an operative channel to increase brand awareness, promote products, engage with millions of potential customers, and generate leads. More and more businesses invest in social media advertising, resulting in worldwide spend doubling from USD 16 billion in 2014 to USD 31 billion in 2016. The US is by far the largest social media advertising market, with more than USD 9.4 billion in 2015 "Statistics and facts", (n.d.)

Social media's business success highly depends on its popularity, as measured in terms of active members rather than total registered members. Active members are more engaged, and by frequently logging in to the platform, they are more likely to see the advertisements, interact with other users, and generate data that is useful to businesses. Active members, therefore, allow social networks to monetize their services more effectively. As the lifeblood that powers their billion-dollar business models, active members are a significant indicator of social media success and a top priority for social media companies aiming to achieve future growth (Tonner, 2016).One commonly used metric for popularity is the monthly active users (MAU), which is the number of unique users for 30 days.

Facebook, a social network focusing on connections between friends and family, is currently the market leader in terms of reach and scope with two billion MAU and year by year 18% increase "Most famous", (n.d). Facebook is the most used social network for marketing purposes and is considered by the majority of marketers as the single most important social platform for their business. Facebook's popularity among marketers has a direct impact on its total revenue: it has the highest total revenue, advertising being the main source, and it has the highest Revenue Per Visit (RPV) in the industry. For every visit on Facebook, the company amounts to 1.25 U.S. dollars. Pinterest has the second-highest RPV – 0.74 U.S. dollars "Statistics and facts", (n.d.). Facebook is, therefore, an ideal example of a highly engaging social network that has leveraged its popularity to achieve impressive business success.

Conversely, LinkedIn, a social network connecting businesses and professionals suffers from low user engagement. Despite significant growth in

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memberships, LinkedIn has been unable to increase its MAU beyond the 25% mark since the second quarter of 2015 (Yeung, 2016). With 106 million MAU, LinkedIn lags way behind Facebook, WhatsApp, Instagram, and Twitter. LinkedIn ranks number 19 in terms of MAU, among other social media platforms. (Global social media ranking 2017, n.d.). Citing the *Financial Times*:

"When other social networks such as Facebook and Snap chat are beginning to put more weight on how many users open the app every day, or how many minutes they spend on the network, LinkedIn has been searching for new ways to get users to return at least once a month." (Kuchler, 2016).

LinkedIn has three main sources of revenue: the leading one is Talent Solutions, which allows recruiters to reach out to LinkedIn members as potential job candidates; the second one is marketing solutions; and the more active members make these services more valuable to recruiters, business and members.

As confirmed by various sources, low user engagement is a major concern for LinkedIn's future business growth. For example, the *Financial Times* recognized that improving user engagement on the platform is central to improve the quality of data, which in turn will increase revenue from Talent Solutions and advertising. Other sources have also expressed its concern about LinkedIn's low user engagement. During *LinkedIn's Q4 2015 Results Presentation*, the company itself acknowledged that the limited growth in active users could be a hurdle to its future monetization efforts (Team, 2016). Furthermore, a Tech Crunch article attributed LinkedIn's low user engagement as one factor driving the poor growth forecasts that led to LinkedIn shares dropping 43% in February of 2016. This source added that LinkedIn's current business model inhibits user engagement in its platform: by focusing on sales and recruiting, and showing interruptive advertising, LinkedIn discourages users from logging onto the platform, which in turn makes the product less useful for recruiters. To regain investors' trust, LinkedIn must change its strategy to encourage better user behavior (Kimmelman, 2016).

LinkedIn was acquired by Microsoft for USD 26 billion in December of 2016, making it the largest acquisition in the high tech industry. This study aims at identifying factors that drive higher user activity on LinkedIn. The findings will help LinkedIn develop strategies to make its platform more engaging, which in turn will allow it to monetize its services more effectively and achieve higher revenue.

The objectives of this study are:

- Understanding the focal motivations for using LinkedIn
- Understanding the effect of demographic and behavioral factors on member login frequency
- Assessing the effect of motivations for use and satisfaction with LinkedIn on member login frequency
- Identifying the factors that could drive higher login frequency
- The research questions to be answered are:
- How do demographic and behavioral factors affect member login frequency?
- What is LinkedIn members' key motivation for using the platform?
- Do LinkedIn members with more motivations login more frequently?
- Do LinkedIn members who are more satisfied with LinkedIn login more frequently?

This study will aim to prove the following five hypotheses:

— Frequency of login to LinkedIn varies according to demographic factors such as age, gender, level of education and occupation;
— Members who access LinkedIn via both computer and mobile application channels login more frequently than members who login via the computer or mobile application alone;
— Frequency of login to LinkedIn varies according to attitudes towards career development;
— LinkedIn members' main motivation to use the platform is job search;
— LinkedIn members who are more motivated to use LinkedIn login more frequently

II. Literature Review

A review of existing literature reveals different approaches used to examine the consumers' motivations to use social media. Archambault and Grudin performed a longitudinal study to analyze social media use from 2008 to 2011. Their subjects of study consisted of a random sample of Microsoft employees. Among the aspects examined were the four basic attitudes towards social media use: for fun, for personal socializing and networking, for networking with external professional contacts, and for internal networking within the company. Compared to 2008, the utility for external professional networking increased in 2011 (Archambault & Grudin, 2012).For internal networking, only half of the employees believe it is useful. A common source of skepticism towards internal networking use of social media was that people's social networks transcend company boundaries, limiting what can be said on work topics.

The study also examined age as a factor affecting social media use. The authors found that LinkedIn appeals more to professionals between 25 and 40 years of age, rather than young students. The study also revealed an issue that may inhibit user activity in social media: as the size and diversity of the network grew, posting items of interest to a small subset became

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less appealing. This creates an opportunity for specialized, differentiated tools and maybe a factor driving the success of LinkedIn.

Another three studies reviewed applied the use and gratifications (U&G) theoretical framework to explain why consumers use social media. According to the U&G theory, individuals actively seek to fulfill their needs through the use of media. This theory had been originally developed to analyze traditional media, but various studies have demonstrated that it can also be applied to social media.

The relevance of the U&G approach is that there is evidence that gratifications received are good predictors of media use and recurring media use (Whiting& Williams, 2013). Hence, understanding the types of gratifications received by consumers from social media could help businesses develop the appropriate strategies to increase the use of social media.

A study by Whiting and Williams identified ten uses and gratifications for using social media. The methodology consisted of 25 in-depth interviews with subjects of ages ranging from 18 to 56 years old. Subjects were asked questions such as why they use social media, why their friends use it, what they enjoy about it, and how often they use it. The gratifications identified were social interaction (99%), information seeking (80%), pass time (76%), entertainment (64%), relaxation (66%), convenience utility (52%), information sharing (40%), and surveillance and watching of others (20%).

Whiting and Williams demonstrated that the U&G theory can be applied to social media. One limitation of this study is the small sample size and the fact that it does not focus on any particular type of social media.

Quan-Haase and Young also applied the U & G approach to analyze social media, but their study aimed at demonstrating how different social media fulfill different user needs. They did a comparative study between Facebook and instant messaging. Employing surveys and interviews with undergraduate university students, the authors identified similarities and differences in gratifications received from the two different types of social media (Quan-Haase &Young, 2010).

Their findings revealed that both Facebook and IM have very similar uses and fulfill similar communication and socialization needs: they are both used as pastime activities to have fun, kill time, relax, and provide a form of escape from everyday responsibilities. However, they also identified small differences in the gratifications obtained. Even though these differences are small, they are sufficient to explain the different ways in which users employ these two forms of social media. Facebook is used to find out about social events, friends' activities, and social information about peers. Although these can also be achieved through IM, it is not as effective as Facebook for two main reasons: first, users have to communicate with each friend separately instead of broadcasting to their entire network as it is with Facebook; second, IM requires both users to be online simultaneously, whereas Facebook allows for asynchronous communication. Therefore, although both social media types provide social information to users, Facebook fulfills a unique need by allowing users to conveniently broadcast social information asynchronously (Quan-Haase & Young).

This study provides opportunities for future research by incorporating a wider range of items in the gratifications sought and obtained. Besides, future research could compare gratifications sought and received from Facebook with other social media.

Yet another study that utilized the U&G approach to analyze social media use was performed by Wang, Tchernev, and Solloway in 2010. This study differs from the other two in that it examined the dynamic relationship between social media use, needs and gratifications, and their self-sustaining feedback effects. By collecting samples of experience data from college students throughout four weeks, this study revealed that social media use is driven by four categories of needs, namely social, emotional, cognitive, and habitual, but only gratifies some of them. The ungratified needs accumulate over time and drive future social media use. Another finding was that interpersonal social environments also affect social media use.

The current literature shows that there have been studies focused on understanding what motivates social media use. However, the current literature does not specifically focus on LinkedIn. Therefore, this study will aim at understanding the relationship between consumers' needs, gratifications obtained, and demographic and behavioral factors affecting the use of LinkedIn.

III. Research Methods

An online survey was developed and distributed using the Survey Gizmo software to existing LinkedIn members in the United States. Respondents were surveyed from November 21 to December 12, 2016. Participation was voluntary and participants were provided (with) a consent form before beginning the survey.

IV. Research Sample

A total of 109 responses were collected, and this sample was reduced to 104 after incomplete responses were removed. The survey was used as a quantitative and qualitative research methodology. The following sections will describe each methodology in detail.

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V. Quantitative Methods

The quantitative methods consisted of survey questions with close-ended answers, such as Yes/No questions and Likert scale questions. An example of a quantitative question included in the survey was "How often do you login to LinkedIn?" where respondents were asked to respond using a 1-5 point Likert scale, as shown in *Figure 1*.

The quantitative questions allow one to generate numerical data to quantify the distribution of the sample's demographic data, attitudes, and behaviors towards LinkedIn.

Besides, the quantitative data allows one to perform statistical analysis, such as analysis of variance, to test the significance of the differences in login frequencies to LinkedIn identified for various groups in the sample. Furthermore, quantitative data allows one to perform correlation analysis between the independent variables (demographic and behavioral variables) and the dependent variable (login frequency to LinkedIn).

VI. Qualitative Methods

The survey was also used as a qualitative research methodology by including one open-ended question where participants were asked to provide their opinions and suggestions on improvements that would drive more frequent login to the LinkedIn platform.

The qualitative data were manually analyzed to identify trends in opinions that ultimately help to uncover elements that would encourage LinkedIn members to login to the platform more frequently.

The quantitative data allows one to describe a certain thing or phenomenon through the natural language of participants. Also, the quantitative data lets the voice of LinkedIn members be heard, allows one to understand the real users' feelings, ideas, and motivations behind their behaviors.

VII. Data Analyses

To assess the differences in login frequency among different demographic and behavioral characteristics, the mean and standard deviations of the login frequency were calculated for each group.

The mean represents the average login frequency within a group, and the standard deviation measures the amount of variation in the login frequency reported in a group.

To determine whether the mean login frequencies were significantly different among various groups, analysis of variance was performed. In each case, the p-value < 0.05 indicates there are statistically significant differences among the mean login frequencies. A p-value > 0.05 confirms that the mean login frequencies among various groups are equal.

a) Relationship between demographic characteristics and login frequency

Table 1: Age distribution and LinkedIn login frequency per age group

Age group	% of respondents	Mean Login Frequency	Standard Deviation
18-25	12%	3.461538	0.9674179
26-40	73%	3.763158	1.1415594
41-60	9%	3.888889	1.0540926
60+	6%	4.000000	1.2649111

Table 1 shows the sample's age distribution, and the mean and standard deviations of login frequency obtained for each age group. Most survey respondents belong to the 26-40 age group, which constitutes 73% of the total sample. The second-largest age group is 18-25 (12%), followed by 41-60 (9%) and 60+ (6%).

The results show that as the age group increases, so does the mean login frequency to LinkedIn. The 60+ age group has the highest mean login frequency but also the highest standard deviation.

To determine whether the differences in login frequency means are significant among the age groups, analysis of variance was performed. Because the sample data did not satisfy the assumptions of normality of residuals, the Kruskal-Wallis non-parametric test was performed. The test indicated that there are no significant differences in login frequency among the different age groups ($\chi^2(3) = 1.8161$, p-value $= 0.6114$).

Table 2: Gender distribution and LinkedIn login frequency per gender group

Gender	% of respondents	Mean Login Frequency	Standard Deviation
Female	58%	3.666667	1.084039
Male	42%	3.863636	1.153174

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Table 2 shows the sample's gender distribution, and the mean and standard deviations of login frequency obtained for each gender group.

The distribution of female and male respondents was fairly even, with 58% female and 42% male respondents.

Male respondents reported a higher mean login frequency and a higher standard deviation than female respondents. To determine whether the difference in mean login frequency is significant, the Mann-Whitney-Wilcoxon non-parametric test was performed. The result indicated that there is no significant difference in mean login frequency between male and female respondents (W = 1166, p-value = 0.293).

Table 3: Distribution of education levels and LinkedIn login frequency per education level

Education level	% of respondents	Mean Login Frequency	Standard Deviation
High school diploma	3%	3.333333	1.154701
Bachelor's degree	21%	3.818182	1.097025
Postgraduate	73%	3.776316	1.138405
Other	3%	3.000000	0.000000

Table 3 shows the sample's distribution of education levels, and the mean and standard deviations of login frequency obtained for each education level.

The majority of respondents has postgraduate education level (73%), followed by a Bachelor's degree (21%). Only 3% of respondents reported "High school diploma", and another 3% reported "Other" type of education.

Respondents who reported a "Bachelor's degree" or "Postgraduate level" of education had the highest mean login frequency. Respondents who reported "Other" had the lowest login frequency and showed no variations in their login frequencies.

To determine whether the mean login frequencies are significantly different among the sample of different education levels, the Kruskal-Wallis non-parametric test was performed. The test indicated that there are no significant differences in login frequency among the different education levels ($\chi^2(3)=2.6513$, p-value = 0.4486).

Table 4: Distribution of occupation and login frequency per occupation

Occupation	% of respondents	Mean login frequency	Standard deviation
Engineering	26%	3.703704	1.0675210
Business and financial	18%	4.052632	1.0259784
Management	18%	3.684211	1.1572300
Computer science	8%	3.875000	1.3562027
Other	7%	4.142857	0.6900656
Healthcare practitioner	6%	2.833333	1.3291601
Fresh graduate	5%	3.800000	1.0954451
Research	4%	3.500000	1.2909944
Education	3%	3.333333	1.5275252
Media and communications	3%	3.666667	1.5275252
Art and design	1%	4.000000	-
Law	1%	3.000000	-
Sales	1%	5.000000	-

Table 4 shows the sample's distribution of occupations, and the mean and standard deviations of login frequency obtained for each occupation group.

Most survey respondents belong to the Engineering occupation (26%), followed by Business and financial (16%), and Management (16%). These three groups of occupations represent 66% of the sample.

The results show that the Sales category has the highest mean login frequency (M=5.00) and the standard deviation is not reported due to only one respondent belonging to this category. Respondents who reported occupation as "Other" had the second-highest mean login frequency (M=4.14), followed by business and financial (M=4.05).

To determine whether the mean login frequencies are significantly different among occupation groups, the Kruskal-Wallis non-parametric test was performed. The result indicated that there are no significant differences in login frequency among the different education levels ($\chi^2(12) = 8.3805$, p-value = 0.7547).

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Table 5: Distribution of access channels and LinkedIn login frequency per access channel

Access channel	% of respondents	Mean Login Frequency	Standard Deviation
Computer	33%	3.200000	1.207818
Mobile app	8%	3.250000	1.164965
Computer and mobile app	59%	4.131148	0.884598

Table 5 shows the sample's distribution of LinkedIn access channels, and the mean and standard deviations of login frequency obtained for each group.

The majority of respondents reported accessing LinkedIn from both computer and mobile app channels (59%), 33% only access it from the computer, and only 8% access it from the mobile app.

To determine whether the mean login frequencies are significantly different respondents using different access channels, the Kruskal-Wallis non-parametric test was performed. The test indicated that at least two groups have significantly different login frequencies ($\chi^2(2) = 15.4831$, p-value = 0.0004344).

To identify the groups that are significantly different, the Nemenyi-test for multiple comparisons was performed as a post-hoc test. The results are shown in Table 6.

The post-hoc test results return the lower triangle of a matrix containing the p-values of the pair wise comparisons. A p-value lower than 0.05 indicates that a pair of categories have significantly different mean login frequencies. the lower the p-value, the stronger the evidence that there are significant differences in mean login frequencies between the pair of categories. A p-value equal to or higher than 0.05 indicates that a pair of categories have the same mean login frequencies. The larger the p-value, the stronger the evidence that the pair of categories have the same mean login frequencies.

Table 6: Results of Nemenyi multiple comparisons test

	Computer and mobile app	Computer
Computer	0.0011	
Mobile app	0.1174	0.9996

As per the results in Table 6, the "Computer" and "Computer and mobile app" have significantly different mean motivation scores (p-value = 0.0011). That means that respondents who use both computer and mobile applications to access LinkedIn, login more frequently than respondents who only use the computer.

There is strong evidence that the means in login frequency among the "Computer" and "Mobile app" groups are the same (p-value = -.9996). There is also evidence, though weaker, that the mean login frequencies between "Mobile app" and "Computer and mobile app" are the same.

Table 7: Distribution of respondents who are seeking job or career advancement and those who are not. LinkedIn login frequency for both groups.

Seeking career development	% of respondents	Mean Login Frequency	Standard Deviation
Yes	51%	3.943396	1.026853
No	49%	3.54902	1.171558

Table 7 shows the sample's distribution of respondents who reported they are looking for jobs or career advancements and those who do not. Means and standard deviations for each group are also reported.

There was an even distribution of respondents who were looking for jobs or to advance in their careers, and those who were not. The respondents who reported seeking jobs or career advancement displayed a higher mean login frequency (3.94) than those who are not seeking jobs or career advancement.

The Mann-Whitney-Wilcoxon non-parametric test was performed to test the significance of the mean differences. The test indicated that there are no significant differences in login frequency among both groups (W = 1098.5, p-value = 0.08735).

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Table 8: Distribution of job satisfaction levels and LinkedIn login frequency per job satisfaction

Job satisfaction	% of respondents	Mean Login Frequency	Standard Deviation
Very dissatisfied	1%	5	-
Dissatisfied	4%	4.25	1.5
Neutral	29%	3.766667	0.971431
Satisfied	48%	3.72	1.178723
Very satisfied	18%	3.631579	1.116071

Table 8 shows the sample's distribution of job satisfaction levels, and the mean and standard deviations of login frequency obtained for each group.

Almost half of the respondents reported, "Satisfied". By combining "Satisfied" and "Very Satisfied", 66% of respondents are satisfied with their current jobs. 29% were neutral about their current jobs and by combining "Dissatisfied" and "Very Dissatisfied", a total of 5% reported dissatisfaction with their current jobs.

Only one respondent felt "Very dissatisfied" about the current job and reported the highest mean login frequency (M=5.00). The "Dissatisfied" group has the second-highest mean login frequency (M=4.25) but also the highest variation of login frequencies reported (SD = 1.5) groups. The "Neutral", "Satisfied", and "Very Satisfied" groups had lower mean login frequencies.

A Kruskal-Wallis test was performed to test the significance of the mean differences. The result showed no significant differences in mean login frequency among the groups ($\chi^2(4) = 3.1479$, p-value = 0.5334).

Table 9: Distribution of involvement in professional organizations and LinkedIn login frequency per each group

Involvement in professional organizations	% of respondents	Mean Login Frequency	Standard Deviation
Yes	57%	3.79661	1.126172
No	43%	3.688889	1.10417

Table 9 shows the sample's distribution of respondents' involvement in professional organizations, and the mean and standard deviations of login frequency obtained for both groups.

The Mann-Whitney-Wilcoxon non-parametric test was performed, and the result indicated that there are no significant differences in login frequency among both groups (W = 1246, p-value = 0.58).

Table 10: Sample survey results collected from one respondent's motivations to use LinkedIn

Motivation category: I use LinkedIn for...	Rating *1: Strongly disagree; 2: Disagree; 3: Neutral; 4: Agree; 5: Strongly agree*
Networking	5
Socializing	2
Job search	5
News and events	3
Developing my portfolio	4
Research and publications	4
Business and product promotion	4
Learning	1

To assess the LinkedIn members' motivations to use the platform, survey participants were provided with statements regarding different reasons to use LinkedIn and asked to rate their level of agreement with these statements using a 1-5 point Likert scale (1: Strongly disagree; 5: Strongly agree).

An example of results collected for one respondent is shown in Table 10. The motivation rating reported for each category measures the extent to which that category encourages the use of the LinkedIn platform. For example, a rating of "5" for "Networking" and a rating of "2" for "Socializing", indicate that networking is a stronger motivation than socializing to use LinkedIn.

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Table 11: Distribution of motivations to use LinkedIn

I use LinkedIn to…	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
Networking	3%	2%	14%	38%	43%
Socializing	21%	37%	26%	15%	1%
Job search	3%	5%	12%	34%	46%
News and events	10%	37%	31%	21%	1%
Development of portfolio	5%	19%	34%	32%	10%
Research and publications	16%	37%	32%	13%	2%
Business promotion	17%	37%	30%	12%	4%
Learning	11%	28%	30%	24%	7%

Table 11 shows the distribution of motivation ratings across all survey respondents for each motivation category. By combining "Agree" and "Strongly Agree", 81% of survey respondents agreed with "Networking" as a motivation to use LinkedIn. "Networking" is closely followed by "Jobsearch", with 80% of respondents reporting agreement. "Development of portfolio" received a combined 42% of "Agree" and "Strongly Agree" ratings. The combined "Agree" and "Strongly agree" percentages for all other factors as motivations to use LinkedIn were significantly lower, with "Research and Publication being the lowest with only 15%.

To determine the main motivation to use LinkedIn, the means and standard deviations of motivation ratings were calculated for each motivation category across all survey respondents.

Table 12: Means and standard deviations of motivation ratings per motivation category

Motivation category	Mean motivation rating	Standard deviation of motivation rating
Networking	4.239583	0.8428622
Job search	4.104167	0.8519843
Developing portfolio	3.208333	0.9505308
Learning	2.854167	1.0855914
News and events	2.656250	0.9041207
Research and publications	2.489583	0.9513956
Business promotion	2.458333	1.0043764
Socialize	2.375000	0.9867544

The results obtained are reported in Table 12 in descending order concerning the mean motivation ratings. "Networking" has the highest mean (M=4.24), followed by "Jobsearch" (M=4.10), indicating that on average they were rated highest among all respondents. The standard deviations were highest for "Learning" (SD= 1.08) and "Business promotion" (1.00), which indicates they had the highest variation in ratings among respondents.

To determine whether the differences in mean motivation ratings are significant across the various categories, a Kruskal-Wallis test was performed. The result indicated that at least two categories have significantly different mean motivation ratings ($\chi^2(7) = 254.8488$, p-value $< 2.2e\text{-}16$).

Table 13: Results of the Nemenyi multiple comparisons test

	Business and product promotion	Job search	Learning	Networking	News and events	Development of portfolio	Research and publications
Job search	9.1e-14	-	-	-	-	-	-
Learning	0.25666	2.3e-10	-	-	-	-	-
Networking	7.2e-14	0.99702	1.4e-12	-	-	-	-
News and events	0.94911	1.2e-13	0.92207	6.3e-14	-	-	-
Development of portfolio	0.00021	6.0e-05	0.41197	1.5e-06	0.01913	-	-

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Research and publications	1.00000	9.9e-14	0.29737	8.0e-14	0.96498	0.00029	-
Socializing	0.99987	5.8e-14	0.09448	7.6e-14	0.76954	2.6e-05	2.6e-05

To identify the categories that were significantly different, the Nemenyi-test for multiple comparisons was performed as a post-hoc test. The results are shown in Table 13.

The post-hoc test results return the lower triangle of a matrix containing the p-values of the pair wise comparisons. A p-value lower than 0.05 indicates that a pair of motivation categories have significantly different mean motivation ratings. The lower the p-value, the stronger the evidence that there are significant differences in mean login frequencies between the pair of categories. A p-value equal to or higher than 0.05 indicates that a pair of categories have the same mean login frequencies. The larger the p-value, the stronger the evidence that the pair of categories have the same mean login frequencies.

The results show that the p-value for pair-wise comparison between "Job search" and "Networking" is 0.99702. This means that "Jobsearch" and "Networking" have the same mean motivation ratings. However, the p-value for the pair-wise comparison between" Job Search" and "Development of portfolio" is $6x10^{-5}$, which is lower than 0.05. This means that these two categories have different mean motivation scores.

Given these results, "Networking" and "Jobsearch", having equal mean motivation ratings, are the motivation categories with the highest reported mean motivation ratings.

Table 14: Frequency of improvement categories reported by survey respondents

Improvement category	Frequency
Content relevance	21
Job search experience	19
Ease of use	12
More offerings	7
Interactivity	6
Connection and network relevance	4
Privacy	4
Less restrictions for non-premium members	4
Pricing	3
Events	3
Learning	2
Contact information	1

To obtain a measure of the respondents' overall motivation to use LinkedIn, the average motivation rating was calculated as the average of motivation ratings across all motivation categories:

$$Average\ Motivation\ Rating = (Rating_{Networking} + Rating_{Socializing} + Rating_{Job\ search} + Rating_{News\ and\ events} + Rating_{Business\ promotion} + Rating_{Research\ and\ publications} + Rating_{Learning} + Rating_{Development\ of\ portfolio})/8$$

A correlation analysis was performed between the respondents' average motivation rating and login frequencies.

Because the data violated parametric assumptions, the Spearman rank coefficient obtained was calculated. A Spearman coefficient of 0. 3635777

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(p- value=0.0001484) indicates a moderate positive correlation between average motivation rating and login frequency to LinkedIn.

b) Suggested improvements to encourage higher login frequency to LinkedIn

The respondents' suggestions on elements that would encourage higher frequency of login to LinkedIn were analyzed and grouped into 13 categories. Table 14 reports the frequency in which each category was reported by the survey respondents.

Content relevance and job search experience were the two most frequently mentioned elements that would encourage higher login frequency to LinkedIn.

Content relevance was reported 21 times. Various respondents claimed that they rarely find any interesting content on LinkedIn. Furthermore, they noted that LinkedIn was often used as a social platform instead of a strictly professional platform, making the content less relevant for professional purposes. Also, several respondents reported excessive advertising and spam in the LinkedIn platform, which further lowers the quality of the content.

The job search experience was reported 19 times. Respondents suggested that LinkedIn should enhance this experience by making it easier for job seekers to find relevant jobs, apply to those jobs, and facilitate networking with recruiters.

The third most frequently reported category relates to ease of use for both desktop and mobile LinkedIn platforms. These respondents reported that the platform is currently not user-friendly. The remaining categories of improvement were reported at a lower frequency.

VIII. Findings

a) Relationship between demographic characteristics and login frequency

There is no evidence to suggest that members of varying age, gender, education level, or occupation exhibit significant differences in their frequency of login to LinkedIn. This disproves the first hypothesis.

b) Relationship between LinkedIn access channel and login frequency

The data suggest that LinkedIn users who use both computer and mobile application channels to access LinkedIn log in more frequently than those who use only the computer or the mobile application. The second hypothesis is therefore valid.

c) Relationship between attitudes towards career development and login frequency

There is no strong evidence to suggest that members who are seeking career development log in more frequently to LinkedIn. There is no evidence to prove that members who are currently dissatisfied with their jobs or involved in professional organizations, exhibit higher login frequencies. The third hypothesis is therefore false.

d) Main motivations to use LinkedIn

The data suggest that the main motivations for using LinkedIn are job search and networking. It is worth noting that these two categories are not independent variables. Networking and job search are closely associated. Therefore, the fourth hypothesis is proved to be valid.

e) Relationship between motivations to use LinkedIn and login frequency

The correlation analysis showed that the higher the overall motivation to use LinkedIn, the higher the login frequency to LinkedIn. As the analysis suggests, there is a positive but weak correlation between these two variables. The fifth hypothesis is therefore proved to be valid.

f) Suggested elements of improvement to encourage higher login frequency

The data showed evidence that LinkedIn users would like improvements in diverse aspects of the platform. The two most popular aspects of improvement were "Content relevance" and "Job search experience".

Given that one of the major purposes of social media is to contribute, consume, and share interesting content with other users, it is not surprising that content relevance was the most frequently mentioned element for improvement to encourage higher login frequency to the LinkedIn platform.

Job search experience was the second most popular element for improvement. This is not surprising given that, as the previous analysis suggested, the job search is the members' main motivation to use LinkedIn. Therefore, it makes sense that members have identified pain points and areas of improvement that would encourage them to use the platform more frequently.

The third most popular element for improvement was the ease of use. This suggests that this is an important factor for LinkedIn users, and if it were enhanced, it could drive more frequent use of the platform.

IX. Recommendations

Based on the findings discussed, the following recommendations were developed:

- To increase members' frequency of login to the platform, LinkedIn should encourage members to be active in both channels: computer and mobile application. This could be done, for example, by encouraging mobile app downloads to members who currently do not use the mobile channel, and by improving the user experience in both computer and mobile channels.

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- LinkedIn should focus on improving the user experience for two key areas: Networking and job search. Not only they are the two main motivations for members to login to the platform, but job search experience has also been identified as one of the critical elements that members would like to see improved to encourage higher login frequency. Although LinkedIn is the leading platform for networking in the US, it is not the leading platform for job searching yet. But by providing an exceptional job search experience, LinkedIn could become the leading platform for job searching as well. Doing so will result in higher member activity.
- LinkedIn should invest efforts to provide relevant content to its members. This was identified as one of the members' priority areas of improvement. LinkedIn should restrict excessive advertising and spam, and develop the tools to feed interesting and relevant content to its users. Doing so will encourage higher login frequency.
- LinkedIn should focus on raising awareness and encouraging the use of their offerings other than networking and job search, such as learning, business promotion, and searching for news and events. When members can identify with more motivations to use LinkedIn, they will login more frequently to the platform.

X. Limitations

One of the limitations of this study is the size of the sample. Due to time constraints, the sample size was limited to 104, which poses challenges to obtaining statistically significant results.

Besides, the sample is biased. The majority of survey respondents consisted of subjects within the researcher's social and professional circle. The majority of subjects belong to the 26-40 age group and have a postgraduate level of education. It was not possible to obtain a sample that is evenly distributed for age, education level, and occupation.

Furthermore, although the motivation categories presented in Table 12 are not independent, we assumed independence for the Nemenyi test conducted for multiple comparisons.

XI. Conclusion

This study demonstrated that LinkedIn user behavior can be assessed using a survey as a quantitative and qualitative methodology. This paper contributes to the existing literature by being the first study to ever examine LinkedIn user behavior. Also, this paper contributes valuable insights about users' motivations to use the platform and factors affecting login frequency that can help LinkedIn to develop strategies that will increase its monthly active users and increase its opportunities for revenue growth.

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Factors Affecting Eating out in Restaurants: A Study on Customers of Dhaka City

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Abstract- Eating out in restaurants is becoming a part of lifestyle among Bangladeshi citizens. While the popularity of eating out is increasing, parallelly, the number of restaurants has been rising at an astounding speed. Given the potential of the restaurant business in the country, this study investigates the reasons for which customers choose a particular restaurant to eat out and whether those reasons vary across demographic variables. Our study shows ambiance and quality of food are the top two factors that customers consider to choose a restaurant for eating out. It also shows that customers do not usually care much about menu variety, food presentation, and value-added deals. We found differences in preference exist among these factors across gender and age and showed the influence of gender and age on the frequency of visit and purpose of the visit. The findings of this study provide major implications for the marketers and entrepreneurs which we articulate at the end.

Keywords: Eating out, restaurant, factors, the influence of demographics, Bangladesh.

GJMBR-E Classification: JEL Code: M31



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Factors Affecting Eating out in Restaurants: A Study on Customers of Dhaka City

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Abstract- Eating out in restaurants is becoming a part of lifestyle among Bangladeshi citizens. While the popularity of eating out is increasing, parallelly, the number of restaurants has been rising at an astounding speed. Given the potential of the restaurant business in the country, this study investigates the reasons for which customers choose a particular restaurant to eat out and whether those reasons vary across demographic variables. Our study shows ambiance and quality of food are the top two factors that customers consider to choose a restaurant for eating out. It also shows that customers do not usually care much about menu variety, food presentation, and value-added deals. We found differences in preference exist among these factors across gender and age and showed the influence of gender and age on the frequency of visit and purpose of the visit. The findings of this study provide major implications for the marketers and entrepreneurs which we articulate at the end.

Keywords: Eating out, restaurant, factors, the influence of demographics, Bangladesh.

I. Introduction

A good number of people, nowadays, believe that eating out is fun. Consequently, the number of people visiting restaurants to eat out has been increasing over the last few years, resulting in a modest growth of the restaurant industry all over the world. Though the contribution of this sector in the economy is still tiny (Bangladesh Bureau of Statistics, 2017), in 2018, the whole restaurant market in Bangladesh has been estimated at BDT 4,500 crores. It is expected that the restaurant sector will contribute 2.1 percent of the country's GDP by 2021 (Business Daily 24, 2019).

The advancement of the economy of Bangladesh has brought about significant changes in the fast food and restaurant industry in this country. Urbanization has given rise to consumerization in Bangladesh, which in turn has developed the fast food and restaurant industry of the county. Whereas there were a handful of fast food shops in Dhaka even a decade ago, there are now thousands of small to large-scale fast food shops and restaurants around the city (Abir, 2019). Fast-food industry started in Bangladesh in the early 90s. A handful of names like Helvetia, Western Grill, Swiss were among the top names at that time. About 25 years later, there are more than 200+ fast food shops in Dhaka alone. Some of these names include Takeout, Mad chef, Chef's Cuisine, Steak house, etc. The lucrativeness of the industry has brought in international franchises like KFC, Pizza Hut, Gloria Jeans, Burger King, Nando's, Crimson Cup in the country (Islam & Ullah, 2010). This has also given rise to other services such as food delivery services (e.g., Foodpanda, Hungrynaki, Pathao Food, Shohoz Food, Uber Eats) as well as restaurant rating services (Harriken). Eventually, the restaurant industry is also addressing the unemployment problem of the country to a large extent and encouraging entrepreneurial ventures too (Business Daily 24, 2019).

Several factors have contributed to the growth of this restaurant industry. From the entrepreneurs' perspective, catering to the large population with fast food, frozen food, organic food, or food in any other form is a profitable venture to invest in (The Financial Express, 2018). It is perceived that the profit margin in the restaurant business is quite big. On the other hand, eating out is seen as a time-efficient alternative as women who once played the primary role of preparing food are increasingly entering the workplace, home-cooked meals are becoming a difficult option for many (Farhana & Islam, 2011). Second, the need to socialize with friends, colleagues, or business associates over food has become a common trend that plays a significant role in shaping our behavior related to eating out. Moreover, restaurants are also an outlet nowadays for family gatherings, celebrations, birthdays, which poses a low effort and cost-efficient option. Thus, in the face of increased urbanization resulting in increased economic activities, people are willing to go to a restaurant than cook themselves, which has given rise to the number of restaurants (Islam & Ullah, 2010). Third, being an emerging economy, people now have more disposable income in their hands than ever before, which they are willing to spend on occasional dining out (Islam et al., 2018). All these factors are contributing to the consumer's affinity towards the fast food shops and restaurants and led the restaurant business to grow remarkably at an astounding speed.

However, the customer segment is still on the rise, and demand is not yet exhausted, eating out in a restaurant is gradually becoming a cultural integration of our country (Abir, 2019). In such situations, the need for a study to understand consumer preferences and choices while selecting restaurants goes without saying

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and sets the premises for this research paper. Thus, the research aims to investigate- how consumers choose restaurants to eat out and whether demographic characteristics have any influence on their choices.

II. Literature Review

As like in any other decision-making process, the choice of restaurant to eat out is also influenced by many factors. This section discusses different factors that affect customers' choice of a restaurant to eat out.

a) *Factors Affecting Choice of a Restaurant*

Extant literature discusses multifarious factors that consumers prefer when they choose a restaurant to eat out. Mhlanga and Tichaawa (2016), in their study in Port Elizabeth, South Africa, identified the top five factors that affect consumers in choosing formal full-service restaurants. The factors identified are: good service (21.25%); food quality (19.5%); ambience (16%); recommendations (9.25%); social occasion and been here before/frequency (7%). Again, Clark and Wood (1998) cited the range of food, quality of food, price of food, atmosphere, and speed of service as the five determining factors of choosing a restaurant. In another study based in Pakistan, Azim et al. (2014) found food quality & taste (96.62%), cleanliness (87.84%), physical environment (82.43%), staff cooperation (80.41%) and suitable environment for a family gathering (80.41%) as the most important five factors that highly influence the customers' selection of restaurants. Similarly, the most important attribute identified by Longart (2015) is the quality of food. Second in importance was service following Atmospherics, as combining ambiance (noisy or quiet), décor and lighting, and music appeared as a third important factor. The other attributes found in that study are location, food presentation, menu options, and cleanliness. While aspects such as portion sizes and offers had relatively less importance, the least important attribute to the customers was the range of beverages.

Through an experiment, Scozzafava et al. (2017) highlighted how price and service quality are always considered as the most important ones to select a restaurant. They argued that the presence of the menu with local foods, organic foods, and OGM-free products is never decisive for the final choice. Still, it is a much-appreciated attribute for almost 30 percent of consumers. Scozzafava et al. (2017) continued that if a restaurant offers local products, the likelihood of choosing that restaurant is three times higher than that of a restaurant not offering it, all other conditions being equal. Again, June and Smith (1987) conducted a conjoint analysis on a sample of fifty affluent upper-middle-class professionals and concluded that the preference of attributes differs across different events. For example, they ranked liquor availability followed by service, food quality, atmosphere, and price as desired attributes for an intimate dinner. In contrast, for a business dinner, service is the most critical factor followed by price, liquor availability, food quality, and atmosphere are the important ones. They also showed how the preference of attributes varied when the event was birthday celebrations and family dinner. In another house-to-house survey conducted by Auty (1992) in the northern of English city, the three most important attributes in three different situations of social, celebrations, and speed/convenience were found food quality, food type, and value.

As such, based on the reviewed literature, ambiance, quality of food, price, service, and friendliness of employees, value for money, cleanliness, location, portion size, speed of service, value-added deals, food presentation, and menu variety are factors that influence the selection of restaurant to eat out.

b) *Effect of Demographic Characteristics*

In a study of restaurant patrons in Spain, Ribeiro-Soriano (2002) found that customers of different ages perceived the relative importance of restaurant attributes differently. However, in that study, there were no significant differences between male and female consumers. Harrington et al. (2010) conducted another study of restaurant attribute according to age and gender and added a third component: dining frequency. The latter did not appear to reveal any differences between customers who eat out more frequently and those who patronize restaurants less. Contrary to Ribeiro-Soriano's findings, they found that the female market segment requires greater emphasis on quality indicator attributes, restaurant setting requirements, and dietary considerations. Longart (2015) stated that female consumers mirror the perceived importance of aspects of older customers who also place greater weight on marketing efforts, enticing promotions, and convenient access to the restaurant. They further mentioned that women seem more interested in offers and promotions than men.

In a survey administered on 350 consumers from Dhaka city in Bangladesh, it was found that age, gender, and income play a mediating role in selecting a restaurant and that consumers' age differences have the strongest influence on their behavior of choosing a restaurant (Rahman, 2012). Srivastava (2015) showed that socialization through hanging out with friends as a major reason for dining outside the home. In that study, no significant difference was found in male and female diners when analyzing their frequency to dine out and preferred purpose. Again, Kivela et al. (2000) linked income with consumption patterns. They argue that less disposable income leads to a lower visits to restaurants. Similarly, Logart (2015) showed thepresentation of food is more important for married or cohabiting couples than by the single respondents.

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In another study, Huda and Hossain (2009) asked corporate executives about their preferences for eating out during lunchtime based on restaurants in the Gulshan area of Dhaka city. The study indicated that consumers had more favorable attitudes towards fast-food restaurants than regular food restaurants in terms of having lunch during working hours. It was observed that customers had a more positive attitude toward fast food restaurant for the bundle of attributes like the atmosphere of the restaurants and food quality. In contrast, the customers showed their favorable outlook towards regular food restaurants because of the characteristics like a reasonable price, variation in food menu and due to the closeness of the restaurant to the work place (Huda & Hossain, 2009).

Reynolds and Gutman (1988, p. 816) in their study advanced the idea that "consumption differs by occasion." Mehta and Maniam (2002) conducted a survey of restaurant attributes based on market segmentation, which considered only two variables, leisure or business, for the purchase occasion, or reasons for dining. Mehta and Maniam assert that professionals who attend restaurants for economic benefits and meeting with clients comprise what they call the business market. These customers aim at impressing a client, closing business deals, or achieving intangible or tangible benefits from co-workers. In contrast, the leisure segment consists of those who are visiting a restaurant to entertain friends and relatives, or for special celebratory occasions (a birthday, a wedding, or other special moment), or just for pure convenience. These consumers are concerned with satisfaction for themselves or for the close group of friends/relatives who accompany him/her.

As such, existing literature identifies different demographic variables, e.g., age, gender, income, occupation, which directly affect customers' preference of attributes to select a restaurant for eating out. However, this study considers only age and gender as demographic variables to explore its influence on choosing a restaurant since the literature shows conflicting findings of the influence of age and gender on the choice of restaurants (see Ribeiro-Soriano (2002); Harrington et al. (2010); Rahman (2012); Srivastava (2015); Longart (2015) for details).

III. Methodology

This study adopts a quantitative method to investigate customers' preferred attributes to select restaurants for eating out and seeing whether demographic variables have any influence on this preference. We collected data from both primary and secondary sources. The source of secondary data was various relevant books, journals, newspapers, and online sites. For collecting primary data, a structured questionnaire was developed, and used for the survey. The questionnaire developed had mostly closed-ended questions, which included a checklist of items, MCQ questions, and few statements with a Likert scale. The first section of the questionnaire was regarding demographic variables of the respondents, while the second section focused on their preferences and consumption. The respondents were required to answer how frequently they visit restaurants and the primary purpose of visiting restaurants. The purpose of these two questions was to determine their consumption pattern. The next questions were on different attributes a consumer considered important to select a restaurant to eat out. It also included questions to explore the importance of those factors in different social settings. To find out the importance of those factors' statements with5-point Likert scale was provided wherein 1 indicated "Not at all important" and five represents "Extremely Important." Since the sampling frame for the customers who eat out in restaurants in Dhaka city cannot be determined, convenience sampling was used to select the respondents. The formula used to determine the sample size for our research is: $n = (z^2pq)/d_0^2$; Where, n =Sample Size; z= Cut-off Value for Desired Confidence Level; P=Proportion of households able to afford the basic amenities q= 1-p and d0 = Precision. Here, we desire a confidence level of 90%, which yields a z-value of 1.65 and a precision level of ±5.5%. The value of p and q will be taken as 0.5 because we want an equal representation of the population. Hence, the required sample size for this study is $n = (1.65*0.5*0.5)/0.055^2 = 220$. The questionnaire survey was conducted with 250 customers who were getting out of different restaurants in Bashundhara Shopping Mall, Jamuna Future Park, and restaurants in Baily road. All the restaurants were in Dhaka City and were selected based on convenience. Discarding a few of the erroneous (most questions were unanswered) questionnaires, we kept only 237 filled in questionnaires.

We entered the collected data into IBM SPSS Statistics software, and conducted one sample t-Test, Independent sample t-test, Frequency analysis, and Chi square test to analyze the data.

IV. Analysis and Findings

a) Respondents' Profile

Our analysis shows that we had diversified respondents in terms demographic variables: age, gender, occupation, and salary. About 50.6% of our respondents are Female, while 49.4% are Male. This represents almost equal participation of both genders in our research. Almost 43% of the respondents are of ages between 21-25 years, whereas 12.2% of them are 15-20 years of age, 16.9% are 26-30 years of age, 14.3% are 31-40 years of age, and the rest 13.5% are 40+ years old. In terms of occupations, about 48.5% of

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respondents are students, followed by 22.4% in private sector jobs, 13.1% in public sector jobs, 7.6% are entrepreneurs, and the rest selected 'others' as their profession. Our analysis shows that 43.5 % of the respondents have a monthly salary below BDT 20,000 while 21.1% of the respondents have a monthly salary of BDT 20,000- 50,000, 16% were in the BDT 50,001-80,000 salary range, followed by 10.1 % in BDT 80,001-150,000 range, 5.9% in BDT 150,001 - 300,000 range and 3.4% in the above BDT 300,000 range.

b) Consumers' Consumption Pattern Relating to Eating Out

i. *Purpose of Visit*

Our analysis shows that around 38% (37.6%) of the respondents visit a restaurant mostly to hang out with friends, followed by recreation (27.4%) and for family gatherings (11%). We notice that a certain percentage of respondents (5.1%) recognized that going to restaurants has become a part of their lifestyle. On the other hand, only 1.3% of the respondents attributed official/business purpose for their visit to restaurants. These findings reflect that visiting restaurants has become a leading social activity among the residents in Dhaka city.

Table 1: Purpose of visit to the restaurant

Purpose	Recreation	Celebration	Official/Business Purpose	Lunch Hour	Family Gathering	Part of Lifestyle	No Cooking Day	Hanging out with friends
Percentage	27.4%	6.6%	1.3%	7.6%	11%	5.1%	3.4%	37.6%

ii. *Frequency of Visit*

We found that the majority of the respondents (40.9%) visit restaurants 3-4 times in a month while 32.9% of customers visit 1-2 times a month. The study shows a decent percentage of respondents (7.7%) visit restaurants frequently (more than eight times a month).

Table 2: Frequency of visit to the restaurant

Frequency of Visit/month	Rarely (1-2 times)	Sometimes (3-4 times)	Fairly Occasionally (5-8 times)	Frequently (8+ times)
Percentage	32.9%	40.9%	18.5%	7.7%

iii. *Average Monthly Spending for Eating Out*

Our analysis shows that more than 83% of the customers spend below BDT 10,000 monthly for eating out in restaurants, while 48.3% of respondents spend BDT 1,001-5,000 following 19.5% of them spending BDT 5,001-10,000. However, almost 5% of the respondents spend a handsome amount (above BDT 20,000) for their restaurant bills monthly.

Table 3: Average monthly spending to eat out in restaurants

Monthly Avg. Spending	Up to BDT 1000	BDT 1001-5000	BDT 5001-10000	BDT 10001-15000	BDT 15001-20000	Above BDT 20000
Percentage	14.8%	48.3%	19.5%	9.7%	3.0%	4.7%

iv. *Attributes Affecting Customers' Choice of Restaurant*

Our analysis shows that customers' choice of visiting a particular restaurant is impacted by multiple factors, among which 'Ambiance' is the most preferred attribute having a mean value of 4.54 followed by 'Quality of Food' (mean value: 4.51). We also observed 'Value for Money' which beats 'Price' in 4th place has a mean value more than 4. These findings reflect that customers in Dhaka city are more conscious about ambiance and quality of food rather than price, i.e., they are willing to pay more for the greater value offered, and their decisions are not just based on price and only lowering prices will not win customers' heart.

Table 4: Customers' preferred attributes to choose restaurant

Factor Considered	Mean Value
Ambiance	4.54
Quality of Food	4.51
Value for Money	4.04

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Price	4.01
Service & Friendliness of Employees	3.91
Cleanliness	3.81
Location	3.65
Portion Size	3.64
Speed of Service	3.6
Value Added Deals	3.51
Food Presentation	3.18
Menu Variety	3.14

On the flip side, we see that 'menu variety,' 'food presentation,' and 'value-added deals' are not so critical to choose a restaurant. It can be argued that customers are more interested in specialty restaurants that serve a few dishes of specific cuisine than a variety of menu. Similarly, food presentation does not matter much as one of their most preferred criteria is quality of food or taste. Table 4 above shows customers' preferred attributes to choose a restaurant in terms of the mean value.

Our analysis also explores that there is a variation of preferred attributes based on the purpose of the visit (see Table 5 for details). It shows, irrespective of the purpose of visit, the most critical factors considered by customers to eat out in a restaurant is ambiance, and quality of food. Whereas, customers who visit during lunch hour considers 'speed of service' and 'price' as essential factors. During lunch hour, customers are in a rush and 'speed of service' is the most important thing, whereas if they visit frequently, 'price' becomes a vital factor for them. Similarly, customers visiting restaurants for official purposes prefer 'service quality' along with 'ambiance.' Interestingly, almost 47% of the respondents whose foremost purpose of the visit is to hang out with friends are noted to be concerned with 'price.' Again, those who visit restaurants to enjoy no-cooking day prefer 'menu variety,' which might be attributed to the fact that they are bored with regular food and are out looking for variety and to try out new things.

Table 5: Variation of factors preferred at different events

Occasion	Factor 1	Frequency	Factor 2	Frequency
Family Gathering	Ambience	50%	Quality of Food	30%
Celebrations	Ambience	33.8 %	Quality of Food	22%
Friends Hangout	Price	46.8%	Quality of Food	16%
Official Purpose/ Business Meeting	Ambience	41.4%	Service Quality	24.9%
Recreation	Ambience	27.4%	Quality of Food	25.7%
Lunch Hour	Speed of Service	45.1%	Price	26.6%
No Cooking Day	Menu Variety	29.5%	Quality of Food	29.1%

c) Influence of Demographics on Consumption Pattern

i. *Influence of Gender*

ii. *Influence of Gender on Purpose of the Visit*

Our analysis shows that the purpose of visiting restaurants differs marginally between males and females. While 17.8% of males consider hanging out with friends as the prime purpose of the visit, 19.8% of females consider the same. Similarly, for almost all purposes, there is hardly a significant difference (see Table 6 for details) between the male and female groups of respondents.

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Table 6: Influence of Gender on Purpose of Visit

	Recreation	Celebration	Official Purpose	Lunch Hour	Family Gathering	Part of Lifestyle	No cooking Day	Hanging out with friends
Male	14.8%	3.1%	1.3%	4.2%	4.7%	1.6%	2.1%	17.8%
Female	12.6%	3.5%	0.0%	3.4%	6.3%	3.5%	1.3%	19.8%

The Pearson Chi-square coefficient is 6.550, with an alpha value of 0.477. At a 90% confidence level, it can be said that the variables are independent of each other.

Chi-Square Tests			
	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	6.550	7	0.477

iii. *Effect of Gender on Frequency of Visit*

Similar to the purpose of the visit, our analysis identifies that the frequency of visits for both males and females does not show significant differences.

Table 7: Influence of Gender on Frequency of Visit

Frequency of Visit/month	Rarely 1-2 times	Sometimes 3-4 times	Fairly Occasionally 5-8 times	Frequently 8+ times
Male	15.6%	21.1%	8.9%	3.8%
Female	17.3%	19.8%	9.6%	3.9%

The Pearson Chi-square coefficient, in this case, is 0.393, with an alpha value of 0.942. At a 90% confidence level, we can say that the variables are independent of each other.

Chi-Square Tests			
	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	0.393	3	0.942

iv. *Influence of Gender on Average Spending for Eating Out*

Our analysis shows that gender has an effect on the average spending for eating out. Table 8 shows how the monthly spending varies due to gender variation.

Table 8: Influence of Gender on Average Spending

Monthly Avg. Spending	Up to BDT 1000	BDT 1001 -5000	BDT 5001-10000	BDT 10001-15000	BDT 15001-20000	Above BDT 20000
Male	5.5%	26.3%	7.6%	5.5%	2.1%	1.7%
Female	9.3%	22%	11.9%	4.2%	.9%	3.0%

The Pearson Chi-square coefficient is 10.081, with an alpha value of 0.073. At a 90% confidence level, we can state that the variables are not independent of each other.

Chi-Square Tests			
	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	10.081	5	0.073

v. *Influence of Gender on Preferred Attributes*

Our analysis shows, there are no significant differences in the attributes preferred by males and females apart from the quality of food and cleanliness. Males focused more on the quality of food, whereas females are more concerned on the hygiene factor.

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Table 9: Influence of Gender on Preferred Attributes

Attributes	Mean		Significance	Results
	Male	Female		
Service and friendliness of Employee	3.92	3.89	.789	No Significant Differences
Ambiance	3.82	3.8	.865	No Significant Differences
Location	3.72	3.58	.301	No Significant Differences
Quality of Food	4.62	4.41	.026	Significant Differences
Menu Variety	3.44	3.57	.330	No Significant Differences
Food Presentation	3.13	3.23	.450	No Significant Differences
Value Added Deals	2.95	3.33	.367	No Significant Differences
Value for Money	4.03	4.08	.685	No Significant Differences
Cleanliness	3.74	4.58	. 014	Significant Differences
Speed of Service	3.7	3.5	.107	No Significant Differences
Price	3.98	4.02	.776	No Significant Differences
Portion Size	3.71	3.57	.288	No Significant Differences

d) Influence of Age

i. *Influence of Age on Purpose of Visit*

Our analysis shows, the purpose of the visit varies at different age group. While recreation is the primary reason for visiting restaurants across age groups 15-20 years and 21-25 years, all three remaining age groups (26-30 years, 31-40 years, 40+ years) were noticed to visit restaurants mainly to hang out with friends. Also, it is observed that consumers in the age group 31-40 years visit restaurants in their lunch hour to a great extent, while family gathering is a central reason for visiting a restaurant for the 40+ age group.

Table 10: Influence of Age on Purpose of Visit

Age and Purpose of Visit					
Purpose	Age Group (in year)				
	15-20	21-25	26-30	31-40	40+
Recreation	5.1%	19.0%	0.8%	2.1%	0.4%
Celebration	1.3%	4.4%	0.4%	0.4%	0.0%
Official/ Business Purpose	0.0%	0.4%	0.0%	0.4%	0.4%
Lunch Hour	0.1%	1.0%	1.4%	4.6%	0.4%
Family Gathering	1.7%	1.1%	2.1%	0.8%	5.3%
Part of Lifestyle	0.8%	0%	0%	3%	1.3%
No cooking day	0.0%	0.0%	0.0%	1.1%	2.3%
Hang out with friends	1.3%	5.9%	13.1%	7.6%	9.7%

A chi-square test also supports this dependence on the purpose of a restaurant visit with changes of age group.

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	134.782[a]	28	0.000

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ii. *Influence of Age on Frequency of Visit*

Our analysis shows that the highest percentage of respondents in all groups usually visit restaurants 3-4 times each month, except for the respondents of age group 31-40, where most customers make around 1-2 visits to restaurants each month. We also note that although younger age groups of 15-20 and 21-25 tend to visit restaurants fairly occasionally, people from the senior age groups do so rarely. It reflects the age group has influence on how frequently customers would visit the restaurants.

Table 11: Influence of Age on Frequency of Visits/Month

	Frequency of Visits			
Age Group (in year)	Rarely (1-2 times)	Sometimes (3-4 times)	Occasionally (5-8 times)	Frequently (8+ times)
15-20	3.0%	6.8%	1.7%	0.0%
21-25	15.6%	17.3%	5.2%	0.8%
26-30	5.5%	5.9%	3.6%	1.9%
31-40	6.3%	5.1%	1.8%	2.9%
40+	2.5%	5.8%	2.2%	2.1%

A chi-square test was done to see if the frequency of restaurant visits were dependent on age group, and they were found to be dependent.

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	19.773[a]	12	0.072

iii. *Average Spending*

Our analysis shows that the average monthly spending is, to some extent, induced by age. Respondents from almost all age groups (except 15-20 years) spendan average of BDT 1,000-5,000 every month on restaurant visits. However, customers of age group 15-20 years spend less than BDT 1,000 per month. On the other hand, a moderate percentage of customers of age groups 26-30, 30-40, and 40+ tend to spend more than BDT 5,000 per month to eat out in the restaurants.

Table 12: Influence of Age on Monthly Average Spending

	Age Groups				
Monthly Avg. spending	15-20	21-25	26-30	31-40	40+
Upto 1,000	4.2%	8.5%	1.3%	0.0%	0.8%
1,001-5,000	1.3%	26.3%	5.9%	6.4%	4.2%
5,001-10,000	1.3%	6.4%	5.1%	3.4%	3.4%
10,001-15,000	0.8%	1.3%	2.1%	2.5%	3.0%
15,001-20,000	0.4%	0.0%	0.8%	0.8%	0.8%
Above 20,000	0.0%	0.4%	1.7%	1.3%	1.3%

The influence of age group on monthly spending is also supported by the chi-square test that shows the dependence of average expenditure on age groups.

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	57.433[a]	20	0.000

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iv. *Influence of Age on Attributes Preferred*

An independent sample t-test was conducted to see whether there was any significant variation in preferred attributes across the age groups. To observe the influence of age groups, all the age groups were considered into two broad major groups: 15-25 years, and 26 and above. Significant differences were detected in the attributes: Value for

Table 13: Influence of Age on Attributes Preference

Attributes	Mean		Significance	Results
	15-25	25+		
Service & Friendliness of Employee	3.87	3.94	.535	No Significant Difference
Ambiance	3.82	3.8	.907	No Significant Difference
Location	3.69	3.61	.580	No Significant Difference
Quality of Food	4.5	4.52	.757	No Significant Difference
Menu Variety	3.43	3.57	.268	No Significant Difference
Food Presentation	3.17	3.20	.821	No Significant Difference
Value Added Deals	3.31	2.98	.035	Significant Difference
Value for Money	4.16	3.95	.090	Significant Difference
Cleanliness	4.51	4.57	.488	No Significant Difference
Speed of Service	3.75	3.46	.020	Significant Difference
Price	4.18	3.83	.003	Significant Difference
Portion Size	3.99	3.3	.000	Significant Difference

Money, Value Added Deals, Speed of Service, Price and Portion Size. For Respondents of age up to 25 were found to be concerned about all those attributes, whereas respondents over 25 focused less on those five attributes. The following table shows details of the results.

V. Discussion

By analyzing the data from our survey, our study sheds light on two aspects- the decision to choose a restaurant as per demographics and whether demographic characteristics (age, gender) influence such decisions.

It is seen from the study that the focal purpose of visiting a restaurant is hanging out with friends followed by recreation, indicating a link between visiting a restaurant and the need for socialization. It is supported by the fact that even the 3rd and 4th top choices of respondents were family gatherings and celebrations, which are also major socializing events. Hence, we get a strong indication that restaurants are now deemed as the center for social livelihood.

The majority of the respondents visit restaurants 3-4 times a month, indicating roughly once a week, and almost half of the respondents (48.3%) spend an average of BDT 1,001-5000 per month.

The ambiance is the most preferred attribute that people look for while choosing a restaurant followed by the quality of food, and value for money irrespective of the occasion. Thus, we can infer that despite the choice of a restaurant being directly related to the quality of food offered at a fitting price, consumers are first and foremost concerned about the atmosphere or surroundings of the place they dine out. Such ambiance may be related to the seating arrangement, décor, availability of privacy for confidential conversations, or even just for aesthetic pleasure.

The influence of demographics on the choice of restaurants is also examined. It can be concluded at a broad level that age influences almost all dimensions of decision making while choosing a restaurant, whereas gender plays more or less a neutral role.

Gender dose not influence the purpose or frequency but influences the average monthly spending for visiting a restaurant. The instances where differences among male and female respondents were evident in the preferred attributes of choosing a restaurant are- while women are more inclined to cleanliness as a preferred attribute, men prefer the quality of food.

Age, on the other hand, is a relevant influencer. Whereas, the younger generation visit restaurants for recreation, those above 25 years of age visit for hanging out with friends. The study shows that the frequency of visits and average monthly spending is also variable on age. The significant differences in attributes endorsed by the younger generation being value-added meals, a value for money, the price all indicate that the young people are more price-conscious and like to get the best value for their money since their income might be limited to a great extent.

Deriving useful insight from the analysis, our study suggests a few implications for strategy formulation by marketers and policy makers-

1. People who visit restaurants irrespective of purpose regard "Ambiance" as the most favored aspect. This can be a signal for restaurants to move towards creating a better environment/ambiance and moving

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towards experiential marketing. Nowadays, many restaurants are differentiating themselves by including specialized sections, for example, book corner/bookshop for booklovers, gaming zone for kids/young adults, culturally appropriate indoor décor in Japanese/Italian restaurant, outdoor lawn to enjoy refreshments in the fresh air. Restaurants should no longer focus on selling just food but an extended experience, an enjoyable ambiance. This concept can be beneficial in differentiating restaurants as competition continue to grow even stronger.

2. As more and more women are entering the workforce with decreased time for cooking a homemade meal for their families, marketers can position restaurants as a place to spend quality family time by launching campaigns to support women's empowerment by making lives easier for them. It will change the slightly negative attitude that Bangladeshi society has about eating out or a no cooking day often because it portrays the wife as a bad homemaker.
3. Since young people want value for their money, a restaurant should position itself as price reasonable to target the youth. They should understand that it is the perception that matters. Even if they are not priced reasonable, marketing communication should be directed towards creating an image of rational prices.
4. Established jobholders, but the young population can be a good target market which focuses on speedy service and price reasonability.
5. Lunch hours are becoming an increasingly popular reason for restaurants visit, and as such, developing novel products for the lunch hour, and communicating speedy delivery can be profitable for restaurants.
6. As a massive percentage go to restaurants for recreation (27.4%), communication can portray models having a refreshing/enjoyable time. Taglines can incorporate the spirit of fun & enjoyment.
7. Women (Mothers in the family) are a key influencer while choosing a decision to eat out. Since women have a concern for cleanliness and hygiene, restaurants can display the cleanliness and professionalism of the kitchen to gain consumer confidence. Many restaurants now have open glass kitchens that people can look through. It inspires confidence in consumers and creates loyal returning customers.
8. Since socialization is the most important reason to visit restaurants, communication should be tailored to various age groups according to their socialization appeal. For example, for attracting business professionals, restaurants should communicate a calm and professional environment with speedy service. In case of attracting celebrations and family gatherings, it should create a separate corner for celebratory events with readymade décor suitable for customization as per the customer's need.
9. Restaurants can adopt targeted marketing towards a certain age groups or occasions rather than trying to attract the mass population for all occasions.

VI. Conclusions

As the country's food industry undergoes a massive overhaul, restaurants are the go of the town now. Rapid industrialization, as well as urbanization, has mechanized our lives. Dhaka city, with a population of about 20 million, has undergone phenomenal changes, which has led to dense housing and abolishment of recreational parks, walkways, and natural scenic beauty. In such circumstances, restaurants remain as peoples' go-to place for recreation, family get-together, business meetings, friends' hangout. Our study shows purpose, frequency, average spending on monthly visits to restaurants vary for a diverse population as Dhaka city. The elements that people seek in a restaurant also vary. The study also shows that these factors, in turn, vary altogether with changes in demographic variables like gender and age. Future studies should investigate the influence of other variables on the preference of attributes. Moreover, further investigation is also needed to explore whether the findings of this study could be generalized for other cities in the country. The study offers few useful recommendations for the marketers and also for the entrepreneurs that can be put into practice to provide superior customer service and gain consumer confidence for a much more profitable venture.

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Internet of Things in Srilankan Hospitals: A Critical Evaluation of the Role of Social Moderators

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Abstract- The globalization of healthcare enables us with the lens to look at the future through the economical globalization of the country and as the infrastructure for a better mankind. Healthcare in modern era is more of a system that connects health technologies, services and application provided to public health. The smart rehabilitation based on Internet of Things (IoT) was introduced very recently mainly to overcome issues of scarce resource caused by growing aging population. On the other hand, shortage of doctors is a much critical issue where the crowded hospitals and long waiting list to seek doctors as well as less time spend for consultation are because of mal distribution of doctors. This study attempted to evaluate the impact of the technological acceptance determinants on adoption towards IoT in the healthcare system and evaluate the moderating effect of provincial area as well as demographic factors in adoption towards IoT in the Srilankan hospitals.

Keywords: internet of things, hospital, mhealth, UTAUT, adoption.

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Internet of Things in Srilankan Hospitals: A Critical Evaluation of the Role of Social Moderators

Rajphriyadharshini Rajmohan [α] & Md Gapar Md Johar [σ]

Abstract- The globalization of healthcare enables us with the lens to look at the future through the economical globalization of the country and as the infrastructure for a better mankind. Healthcare in modern era is more of a system that connects health technologies, services and application provided to public health. The smart rehabilitation based on Internet of Things (IoT) was introduced very recently mainly to overcome issues of scarce resource caused by growing aging population. On the other hand, shortage of doctors is a much critical issue where the crowded hospitals and long waiting list to seek doctors as well as less time spend for consultation are because of mal distribution of doctors. This study attempted to evaluate the impact of the technological acceptance determinants on adoption towards IoT in the healthcare system and evaluate the moderating effect of provincial area as well as demographic factors in adoption towards IoT in the Srilankan hospitals. The primitive purpose of this study is to provide Healthcare departments and agencies including; hospitals, pharmacies, pharmaceutical companies to develop a balanced idea of the expectations of the users of IoT. The framework of the study was adopted by combining the Unified Theory of Acceptance and Use of Technology (UTAUT) and UTAUT2 models. The structural models of the research were generated using SPSS V26 and AMOS V26. Hypotheses were tested through the proposed final model of the study. The research revealed that provincial area moderate Social influence, Facilitating condition and perceived creditability in adoption towards IoT in the healthcare system. The finding of this study discovered that younger physicians are more likely to adopt IoT products. Hence IoT marketers might consider targeting young physicians who like to explore new technologies. This study also implicated that physicians who have sufficient resources and knowledge toward IoT at hospital have a higher intention to adopt. the research. However, the IoT technology is still in its early premature stage of development and requires an intense evangelization. To a certain extent, this research had identified the critical factors that impact adoption towards IoT in healthcare industry in the Sri Lankan context and suggests that health care organizations should create awareness of IoT products to increase physician's adoption towards IoT.

Keywords: internet of things, hospital, mhealth, UTAUT, adoption.

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I. Introduction

a) IoT in Healthcare

A step towards a sustainable healthcare system is the major concern of every government in the world. Currently enormous changes are occurring in this sector. Such nonstop changes as well as advancements demand an up to dated healthcare organizations with the medical information, organizational relationship as well as technological adoption. Stankovic (2014) argues that the better future of the healthcare sector is well enough blending with the globalization process. Even though the healthcare sector was highly evolving towards its advancement in the western world, about two centuries ago, still its advancement has just begun recently in the developing world. The public healthcare system is considered to be improved with the vast view of the sustainability of the population health. On the other hand huge portion of the healthcare sector in the developing countries is highly managed by private authorities.

The globalization of healthcare enables us with the lens to look at the future by two ways. First the economical globalization of the country helps to build up a better healthcare system as well as the infrastructure for a better mankind. Next, globalization of technological advancement in the healthcare sector through innovations from computerized machines to cloud systems. However the disadvantage is that the growing globalization had helped to make wealth distribution instead of solving the issues. Never less the increasing number of mobile apps and shortly of technology made the situation better by giving low expense technology sharing now than ever. The study by Lansisalmi *et al.* (2014) focused on the innovation in the healthcare system, where the need of adopting, generating, diffusing services as well as technological innovation in the sector as urgent. The study also indicated the major challenges for the growth of the sector including increasing number of elderly patients, retiring work force, cost efficiency as well as expectation of high quality care.

In general, innovation is defined as the introduction and application of processes, idea, products, and new unit of adoption within a group, role/organization which significantly benefit both

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individual and a group of society. Aalto and Ruoranen (2014) stated that innovation in the healthcare does not solely focus on innovation related to treating patients. It should enable the system to perform steadily as well as to improve work environment of the healthcare professionals (ex: data management tool, surgery assistance, training tools, alarm systems). According to Goyen & Debatin (2009) medical technology is defined as the equipment, procedures as well as the process by the means of medical care is delivered.

Healthcare innovations are numerous; the list is getting longer and longer for the betterment of the mankind. Even though the innovation in the healthcare can be viewed broadly, since this research's objective focused on IoT, the intervention of IoT in healthcare will be the subject matter. Since the final destination of the research is to understand the business applicability of IoT intervention on the healthcare innovation, this section will elaborate on the financial aspect of the healthcare sector. Sittig (2002) stated that continues intervention of technology innovation in the healthcare sector require higher cost. Even though majority of the countries allocate substantial amount of financial resources for heath care, still it seems insufficient. On the other hand, nerveless huge investments were taken place in some innovation of this sector where expected value is not delivered.

Healthcare innovation is highly expensive; mainly the medical technology becomes the dominant driver of the healthcare cost. thus the healthcare policy makers trying to overcome the cost-efficiency of the future advancement of healthcare. Lanseng and Andreassen (2007) stated nerveless some technology reduces the cost, they result in negative aisle on their long run. The cost efficacy issue still sustain even after the continuous effect of scientist, because the inability to take over previous technology that tend to be in the similar or lower cost in the real market. This issue with stand because the government cannot symbolize an operating system as out dated just there is a more expensive solution arrived.

Healthcare in modern era is more of a system that connects health technologies, services and application provided to public health. Ahokangas *et al.* (2015) offered 16 different scenarios for an individual connected health. According to them a connected health solutions attracts health professional to improve their attention towards public health. However this does not shows that all the implemented technologies will successes in healthcare sector, as there are many obstacles in the implementation and adoption in such technologies. On the other hand Atkins & Cullen (2013) stated that connected health become a central part in the healthcare delivery where patients will be able to access and control their own medical data.

b) Architecture of IoT in healthcare

Medical rehabitation is referred as the healthcare services that help people who have suffered from injury or illness and enable to restore lost skills and to maximize the self-sufficiency. The smart rehabilitation based on IoT was introduced very recently mainly to overcome issues of scarce resource caused by growing aging population. Such concept can be viewed as a sub system of smart city (Nath, 2006).

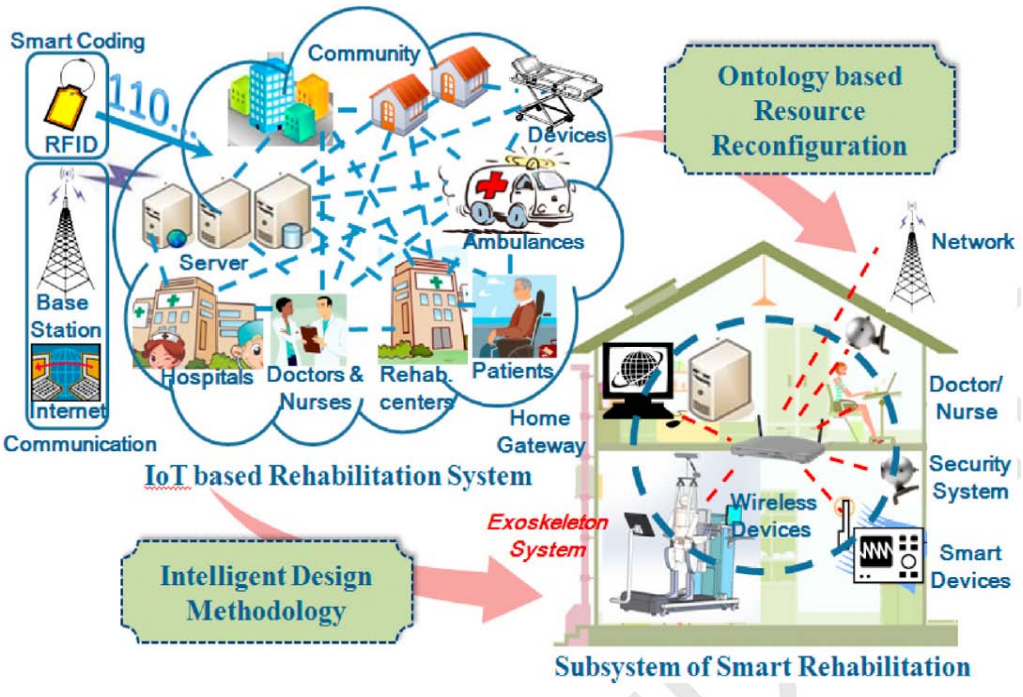


Figure 1: The framework of IoT-based smart rehabilitation system (Fan et al, 2014)

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The IoT based healthcare system couples all the obtainable resources as a network to execute healthcare activities including monitoring, diagnosing and conducting remote surgeries through internet. Figure 1 implies on the frame work of the IoT- based rehabitation system which extends the healthcare services from hospitals to homes (Le Gall, 2013). Wireless technology has been intragrated in the monitoring devices that act as a network manager of the system. As shown in figure 1 the centralized database is intragrates in a server that connects with all the available resources. An intermediary proxy involve in consolidation, data analysis, detection of critical events and responsible to create rehabilitation strategies. Finally an automated resource allocator act as identifier of solutions to meet specific requirement of individual patients of the network (Fan et al, 2014).

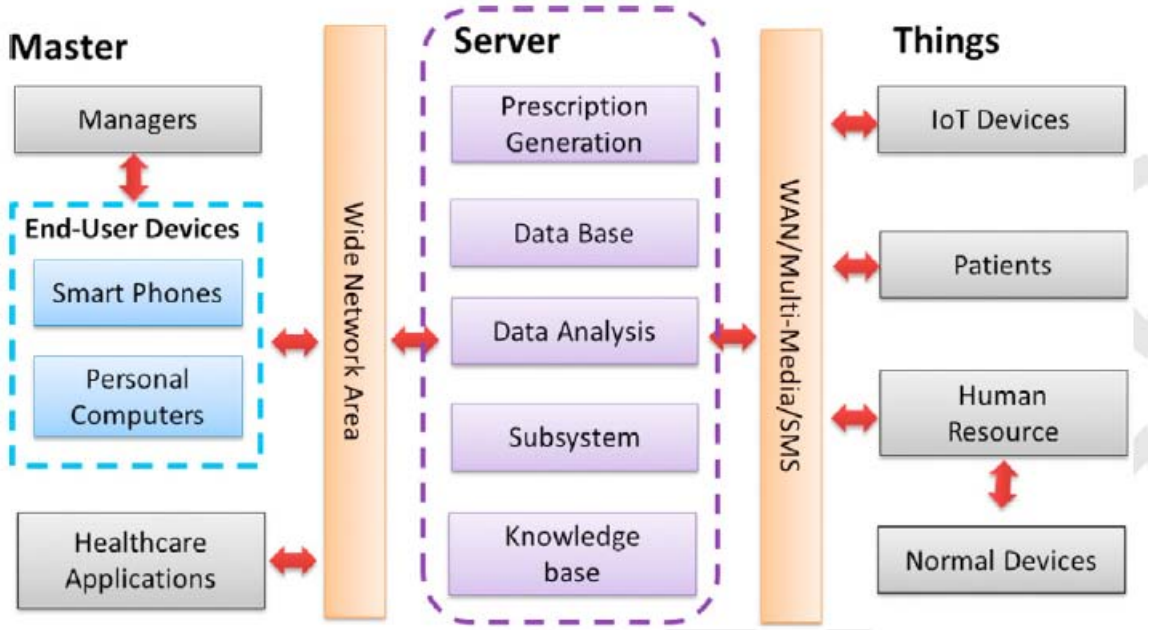


Figure 2: System architecture of the IoT based rehabilitation (Fan *et al*, 2014)

As shown in figure 2 the architecture of IoT based medical rehabitation consists of 3 sections: Master, server and things (Feki et al, 2013). Master implies on people within the system who have specific permission to the system via the end-user devices, such users includes: 'Server' play the central role of the entire healthcare system, Its functions includes data base management, prescription genentration, data analysis, knowledge base management as well as sub-system construction. 'Things' in the IoT paradigm refers to the physical objects that, via WAN, SMS and multimedia technology. Such objects include both patients as well as other human resources. This proposed architecture was verified and widely used in various study (Paré et al, 2010).

c) Electronic health (E-Health)

Since the birth of internet, the term 'e' - tend to appear in literature very frequent. This includes email, e-commerce as well as e-health. As the name implies e-health helps to solve health as well as healthcare related issues using ICT. Today e-health, where the use of internet to find health related quarries is high among all age groups as well as both genders. An important study by Kummervold *et al.* (2008) indicated, the use of e-health is high potentially among young women. Such growing interest of internet will gives a better informed patient cluster as well as more interactive internet based communication system, giving as opptuninty for growth for e-health business.

E- Health is wagly defined as a component of healthcare businesses over internet or as a new business model of healthcare using technology. Study by Orina *et al* (2005) provided 53 unique definitions as well as two universal themes such as health and technology, Even though the term 'Health' is presented in all the definition according to Orina *et al* (2005) only 21 out of 53 mentioned internet in its definition. Thus in addition to technology and health six additional themes where included in the frequently used definitions for e-health. There are commerce, stake holders, activities, places, outcome and perspectives.

Most of the definitions focus on the delivery of healthcare services whiles some centered on the expected outcome of the services. According to Pagliari (2005), e-health was defined with respect to its application as well as patients while other looks broadly in to its effect on all stake holders. However all

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definitions together substitute the idea of the impact of e-health in cost effectiveness and efficient service on time, with respect to emphasizing on the issue that e-health is not yet grown to take over conventional healthcare while it can assist the sector to move it further ahead through cohesive performance. On the other hand Norman & Skinner (2006) indicated even though western world have the ability to browse internet they lack the skill to utilize e-health platform. Thus with such existing skill gap it is difficult to understand the potential of E-health in up warding the public health.

d) Mobile Health

In recent decades numerous healthcare services have shifted toward patient centered care with main objective being quality of care (James & Harville, 2016). Historically disease centered care was followed where medical decisions with either limited or no patient involvement. In such model the communication between physician and patient is more of set of directives than a group decision on conversation with patient input. On the other hand patient centered care provides both input and inclusiveness to patient as well as family (Matthews, Rocchi, Wang & Gafni, 2001). Even though patient centered care model gives customer, service oriented enhancement, strategic application and confusion in definition due to lack of knowledge in medical terminology will have no real impact on care rather leading to perceived superficial efforts.

However, today the adoption of mobile communication technology and the concept of patient centered care becoming possible due to the progressive advancement of mobile application to both personal and population health management (Marufu & Maboe, 2017). Such new field of technology based patient centered care is known as mobile health (mHealth). The World Health Organization (WHO) defines mHealth as public and medical health practice aided by mobile devices, including mobile phones, personal digital assistants (PDAs), patient monitoring devices and other wireless devices.

Whereas mHealth Alliance has broadly stated that mHealth is either mobile based or mobile enhanced solution that can deliver health. They further said that high penetration of mobile devices in both developed and developing country enabled delivery of novel medical and health service to any point of globe (Serrano et al., 2016). Mobile applications are software programme that are specifically developed for mobile devices such as smart phone and tablets. In addition to mobile application (App), wearable activity monitors (WAM) are also included in mHealth. Today more than 400 WAMs are on market that can be worn on various body parts or clothing including wrist or pocket the most popular companies that currently offer these devices are Apple, Under Armour, Fitbit, Garmin, Pebble Time, and Misfit (James & Harville, 2015). mHealth is been wildly used to obtain primary healthcare, mainly in resource-poor areas to increase access to health services, like real time diagnosis, health education, data collection in disease surveillancethe and emergency medical response (Herrmann & Kim, 2017). mHealth is a easy accessible, low cost mechanism that act as a potential feasible solution to the healthcare needs of the population by creating quality healthcare more affordable as well as effective across the country.

e) Healthcare system in Sri Lanka

1) Physician recruitment and retention challenges in Sri Lanka

WHO defines doctor-population ratio as the number of doctors assigned for a specific group of population. According to WHO recommended doctor-population ratio of Sri Lanka, with reference to disease mobility and population density should be 6.2 per 1000 population (1 doctor for 150 persons). However the current estimated doctor -population ratio of Sri Lanka is 1.04 per 1000 population (1doctor for 961 people) which is far below the global average (17 per 1000 population) and that of the recommended value. Also the specialist per 1000 population is very low as 0.04 (one specialist per 25000 people), (Ministry of Health, 2018).

As noted above up to date the demand for licensed physicians is high in Sri Lanka. According Ministry of Health, Sri Lanka at least another additional 3500 doctors are need to fulfill the primary healthcare service of the country, However only 1200 doctors are able to graduate from Sri Lanka medical school and another 200-250 medical graduates return from foreign (Ministry of Health, 2018). Among the 1500 active registered doctors only 70% are employed under health ministry to practice as physicians and above in public hospitals. It was noted 15% of active registrants are migrating overseas each year. Analyzed data of last 10 years by Sri Lanka Medical Council confirmed these percentages are still applicable. Kessel et al., (2017) indicated doctors are migrating to more rewarding countries which offer better remuneration than Srilankan hospitals. No private medical college in the country also another contributor for the shortage of physicians. Thus the required human resources in the healthcare service are not fulfilled yet in Sri Lanka.

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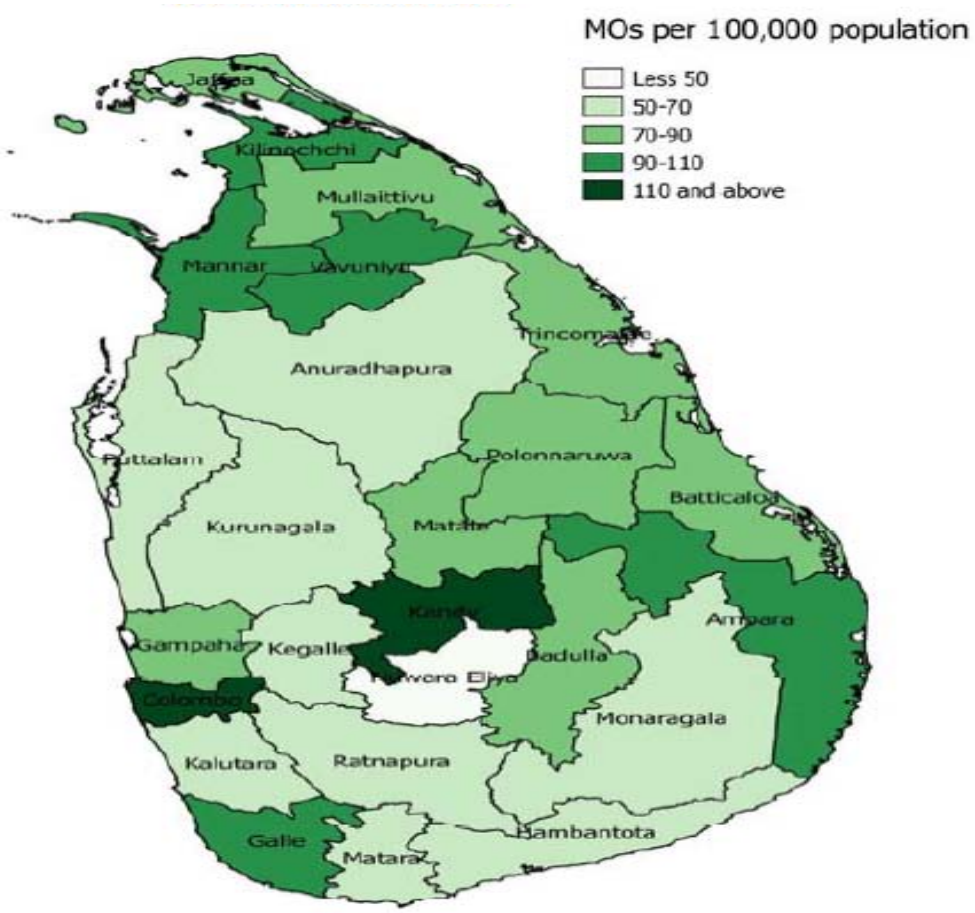


Figure 3: Distribution of Medical officers (MO), 2017 in Sri Lanka (Ministry of Health, 2018)

Shortage of doctors is a much critical issue where the crowded hospitals and long waiting list to seek doctors as well as less time spend for consultation are because of mal distribution of doctors. Statistical estimated by Sri Lanka Health Ministry showed that the capital of the country, Colombo (western province) enjoys 2.5 per 1000 population ratio followed by major cities including Kandy, Ampara and Galle (Ministry of Health, 2019). Whereas rural side of the country like Nuweraliya and Kurunagala recorded lowest value such as 0.37 and 0.5 doctors per 1000 population ratios respectively. Figure 3 indicates the level of distribution of physicians and other medical officers within the country. These concepts illustrate the need of more clinician in those regions as well as highlight the need to seek out alternative methods of healthcare, communication and access. One such alternative can be adoption of mHealth via IoT.

2) Healthcare system of rural population

Mobile technology is not always restricted to geographic boundaries and distances, neither weather nor traffic conditions. Rural population as well as busy people in urban area who never find time to get appointment can get healthcare services by the use of technology. However irrespective to urban, rural healthcare system is more focused on patients under remote conditions. Ganapathy *et al*, (2016) stated that rural population is geographically dispersed as well as faces limited access to specialized health providers. Nevertheless as shown in figure 4, the rural internet access and cell coverage of Sri Lanka increasing rapidly. Thus introduction of IoT will have a greater benefit for rural areas of Sri Lanka who suffer from scarce healthcare consultants.

3) Information technology and Mobile application penetration in Sri Lanka

Mobile phone is the fastest spreading technology of this millennium. Its penetration is becoming deeper in mostly every industry in the world. In 2017 nearly 68% global population is using mobile phone which has increased nearly 15 fold since 2010 (Sri Lanka Telecom communication, 2019). According to interntelivestats.com currently 6,087,164 people of Sri Lanka are using internet which accounts for 48.7% of total population and 0.2 % of worldwide internet users more than 3.5 million face book users and 60K Instagram users are Srilankan. Up-to-date the mobile penetration level of Sri Lanka has risen from 97% in 2012 to 136% in 2017(Sri Lanka Telecom communication, 2018). Currently numerous mobile

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networks are providing service to Sri Lanka. This includes Mobitel, Diolog Axita, Hutchison Lanka, Etisalt Sri Lanka, SLT, Bharthi Airtel and Lanka bell.

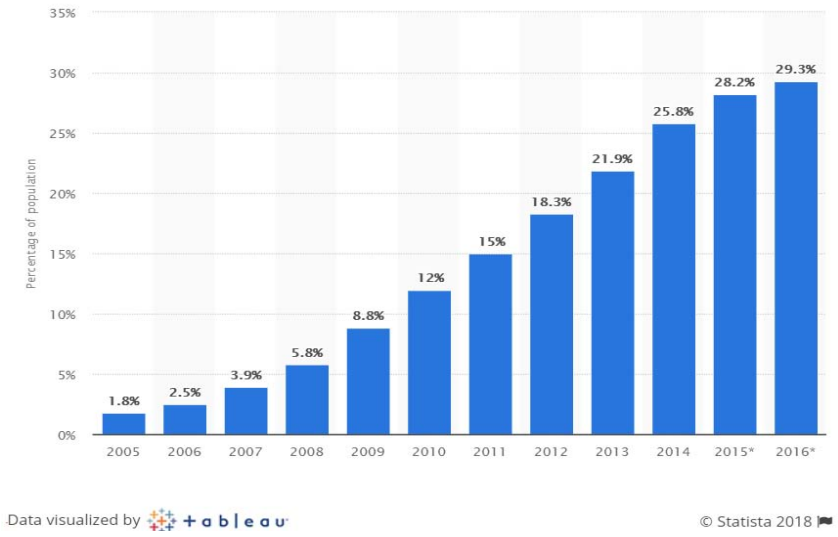


Figure 4: Mobile internet penetration in Sri Lanka, (www.statista.com, 2018)

According to the International Telecommunication Union, 2G covers 90% Nation whereas 3G covers 70%. The 3G population coverage has grown from 45% in 2012 to 70% in 2015 covering 30% of the rural area of the country. Major mobile networkers have introduced 4G in Srilankan market that currently covers 20%of the population (www.statista.com, 2019). In contrast to 3G, 4G technology is almost four times faster. The Sri Lanka Telecom communication provider updated their network system to fiber which current the fastest net speed providing technology in the world.

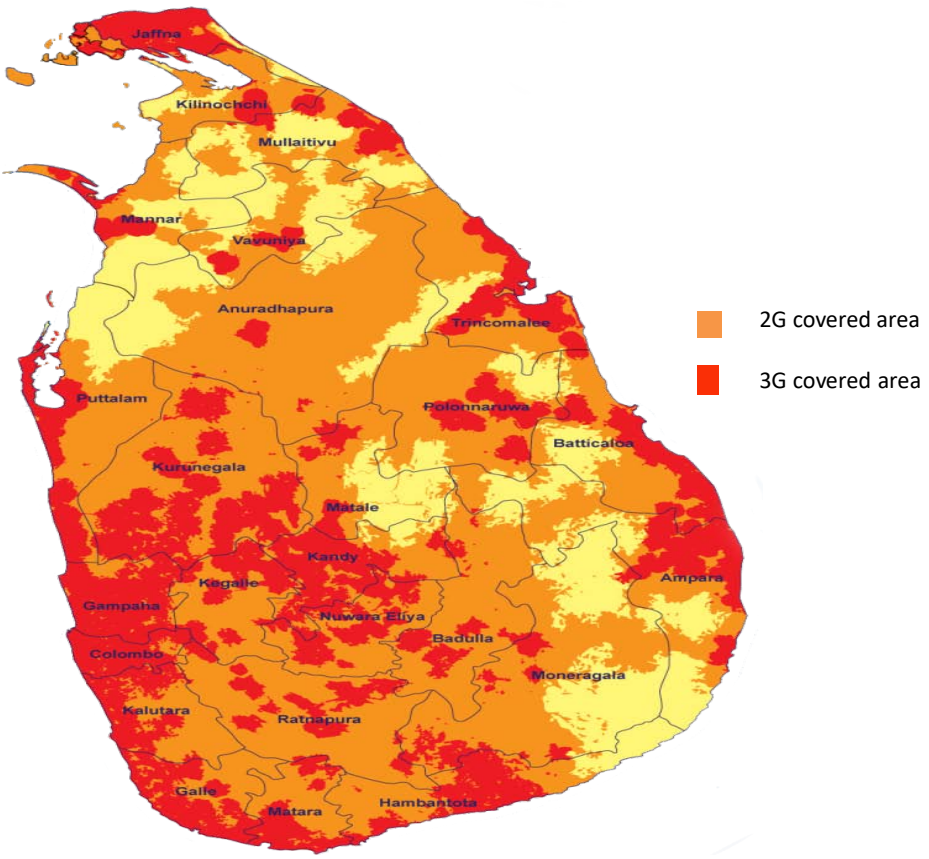


Figure 5: 2G and 3G coverage in Sri Lanka (Sri Lanka Telecom, 2019)

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Moreover the knowledge to use internet and computer literacy rate is 48% among residents of urban sector. Whereas it is about 19.9% among population of rural sector this shows that not only mobile penetration also the literacy on information technology is higher and adequate enough to adopt IoT among both urban and rural population of Sri Lanka (Ministry of Education, 2019). Social media being the first runner among mobile application enables healthcare to join hands by giving notable opportunity such as appointment scheduling, medical record access, reminders and mobile sites utilizing such as connections from brick and motor locations many healthcare institution , begun to facilitate relative communication between patient healthcare providers from vast distances (Sheerin, Stonebanks, Jeffery & Schouten, 2016).

The level of technology plays a key role for a successful adoption of IoT (Hoque, 2016). Even though studies on IoT showed improved patient outcomes severe there are still few may be connected with the use of such technology including providing clinical decision support and protected health information quality of service. Being a developing country Sri Lanka endures from various healthcare related issues such as shortage of physicians, uncontrolled epidemic diseases and limited healthcare resources in rural areas. Various literatures (Abd Ghani & Jaber (2015); Adebara et al, (2017); Fayaz-Bakhsh & Rostami Golmohamadi, (2012) have shown that adoption of IoT can overcome such obstacles.

The objectives of the research were (1) To evaluate the impact of the proposed technological acceptance determinants on adoption towards IoT in the healthcare system, (2) To evaluate the moderating effect of provincial area in adoption towards IoT in the healthcare system , (3) To evaluate the moderating effect of Gender in adoption towards IoT in the healthcare system, (4) To evaluate the moderating effect of Age in adoption towards IoT in the healthcare system. The primitive purpose of this study is to provide Healthcare departments and agencies including; hospitals, pharmacies, pharmaceutical companies to develop a balanced idea of the expectations of the users of IoT. The findings of this study will redound to the benefit of society by analyzing the level readiness as well as awareness of the society towards IoT. This study reviewed all the possible literature based on the above mentioned concepts and will provide assessments of the researcher. The research provided useful information for various stake holders including, private hospital investors, economists, policy makers and academic researchers to identify the significant factors in the adoption of the Internet of Things in by Sri Lankan doctors. For the researcher, the study will help to gain knowledge and uncover critical area in IoT that many researchers were not able to explore. In addition this research will serve as a theoretical model for future studies of the same nature and the researchers will benefit from this study, and it will provide them the facts needed to compare their study during their , time and usability.

f) Adoption of IoT

Marks et al. (2011) discuss the adoption of IoT across the intention and behavior stages of the adoption method. They found that perceived uncertainty shows a stronger impact on intention than on adoption behavior. However, uncertainty affects each intention and behavior of adoption of innovation, though in numerous ways that (Arts et al., 2011). Whereas intention is mirrored in distant future adoption choices, behavior is mirrored in close to future adoption choices. Uncertainties concerning advantages ar additional necessary, as adoption are additional distant (intention). Once the behavioral amendment is significant (near future), customers focus additional on value uncertainties, related to change and new learning (Castaño et al., 2008).

This has become the truth for many customers in numerous contexts, together with work, family, and college (D L. Hoffman, Novak, & Venkatesh, 2004). Many technologies like transportable (Licoppe & Heurtin, 2001), on-line video games (Lo, Wang, & Fang, 2005) and also the web (Hadlington, 2015) will increase customer dependency. It's been explicit that dependency is coupled to "technostress" (Shu, Tu, & Wang, 2011), which means the negative impact of technology on customers' attitudes, thoughts, behavior, and physiology (Weil & Rosen, 1997). Technological dependence might produce isolation because communication with devices substitutes communications with humans. In addition, technology dependency may also produce addiction, thanks to the abuse or overuse of a given technology (Charlton, 2002). Addiction may be seen as an additional severe sort of dependence because it will represent a status (Dhir, Chen, & Nieminen, 2015). Mani and Chouk (2016) analyzed if dependence absolutely influenced shopper resistance to sensible merchandise and if dependence was a predictor of privacy issues. The authors found proof for dependence being a predictor of privacy issues, a barrier that is mentioned higher than. However, they failed to realize a significant impact of dependence on shopper resistance. However, this will be explained by their sample, consisting of digital natives, which can have difficulties in perceiving their dependence. Older shoppers are on the opposite hand additional doubtless to understand dependence as a result of they will compare their lives before and when the adoption of digital innovations. Besides, it is tough to judge dependence while not owning the device that is being tested. It will thus be fascinating to examine if this thesis finds proof of dependency being a barrier against IoT adoption. Note that this thesis is testing thrush

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dependency could be a barrier for adoption, whereas Mani and Chouk (2016) tested thrush dependency cause shopper resistance.

Kim et al. (2007) define worth as "the trade-off between total edges received and total sacrifices". It has any argued that the majority shoppers do not have the necessity (D L. Hoffman & Novak, 2015, or interest (44%) in owning AN IoT device (Assurant opposition, 2017). This makes it tough for corporations to achieve several shoppers. Marketers have conjointly struggled to seek out the correct worth proposition to speak to shoppers (D L. Hoffman & Novak, 2015). As an example, increasing numbers of devices are adscititious to the IoT scheme. This raises questions about the utility and adscititious worth of those innovations (Mani & Chouk, 2016). This can be necessary as Atzori et al. (2010) suggest that perceived edges play a significant role in explaining why shoppers use IoT services. in addition, as Piwek et al. (2016) discuss in their analysis, several wearable devices do not add the useful worth that's expected, and that they need an excessive amount of effort, that ruins the user expertise. Similarly, Atzori et al. (2010) state that if shoppers do not understand the usage of devices as useful, they are unlikely to use the devices still. On the opposite hand, perceived edges provided by IoT devices are also seen as raising the standard of users' lives in an exceedingly wide selection of domains.

g) Suitable theory to study IoT adoption

In the case of IoT adoption there is lack of research on suitable constructs to study IoT adoption. Besides there was one using modified TAM by Gao and BAi (2014). However the study evidence that the adoption of IoT differs from other information technology. Also a more complicated IT adoption model needed to be applied to investigate IoT adoption. On the one hand adopting IoT is relatively east to customers, as a potential user looks on the benefit of their use, especially in facilitating life, like eliminating wired connections between used devices and reduction of labor-intensive activity in managing such system. Moreover today using modern technology is well perceived social, and by time IoT becomes cheaper, that favors the use of them. However, on the other hand, numerous objections mainly related to privacy issues make IoT adoption slower and harder.

Many researchers have attempted to investigate factors that affect the IoT acceptance by customers. Guo and Bai (2017), on their study, developed an integrated model to determine the factor that influences customer's acceptance of IoT. The model adopted TAM theory and included three technological factors (perceived usefulness, trust, and perceived ease of use), two individual user's characteristics (perceived behavioral control and perceived enjoyment), and social context factor (social influence). The study carried out on 36778 Chinese consumers, and the data were analyzed using structural equation modeling. Among the factors studied, except 'trust,' other factors had strongly influenced the intention to accept IoT, whereas 'trust; did not have any influence on predicting the intention. Author reasoned that due to lack of intention between consumers and IoT system the 'trust' become insignificant predictors of user's intention to use IoT. He further stated that IoT is relatively a new technology that's consumers hardly know the technology is less familiarized. Therefore they may not willing to assess either security or trustworthy of it. this lights out that the relationship of trust to behavioral intention is moderate on the usage of the technology. The result of the study showed that consumer expects to achieve fun or leisure related characters from the interaction with IoT which in turn give rise to highest intention to use IoT.

According to the authors the developed model can be used both in work place and market place. However they did not provide any validation values which can be trustworthy for future users of the model. Moreover the study does have many limitations. Firstly it was a cross-sectional study that failed to lighten insight more in-depth. This is to analyze the time sequence of the relationship among the construct, a logistical study needed to be carried out in future. Another drawback of this research is only forced on one economy (i.e., China) as there are different business norms, government regulation and social-cultural beliefs with other developing countries. It is better to validate the model of the study on other countries to implement this model as the universal IoT acceptance model for developing countries. Group (2014) investigated customer concern toward adopting IoT. The survey around 2000 customers in limited a state. The result of this research showed that awareness of usefulness; technology, security, privacy, and price are primary concerns of customers.

Venkatesh (2008), on his paper extends the UTAUT model to study use of technology and acceptance in a consumer context. The proposed UTAUT2 integrates three constructs, such as hedonic motivation, habit and price value. Individual differences (age, gender, and experience) were hypothesized to moderate the effects of these three constructs on technology use and behavioral intention. 1,512 mobile Internet consumers in Hong Kong were studied in this research, using a two-stage online survey.

This showed that rather UTAUT, the extensions proposed in UTAUT2 produced a significant improvement in the variance in behavioral intention as well as technology use. Since Hong Kong is a land that has a high penetration rate for mobile phones, thus finding of this study may not apply to less

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technologically advanced countries. Moreover the study was conducted on mean age of 3, hence may not be applied to significantly older population. This study was conducted only on one type of technology (mobile Internet). Thus future research needs to be built on this study by testing UTAUT2 model of different ages, different countries, and different technologies.

Macik (2017), on their study focused on both positive and negative factors that influence the adoption of IoT. They studied nearly 200 students of economic department of public university of eastern Poland using online structured questionnaire. The data were analyzed using univariate analysis (variance UNI ANOVA) and conserved based structural equation modeling (CB-SEM). Here a modified conceptual framework combining both UTAUT2 and PIIT was used. The result of the study showed even though majority of the participate (78%) was not aware of IoT concept, their usage looks rather high, showing high levels of adoption of IoT. Macik (2017) stated that young consumers prefer usage of connected things (through WIFI, Bluetooth) than conscious IoT usage. However this study only focused on four groups of IoT, including wearable devices, smart home appliances, smart consumer electronics, and intelligent building automation. Thus concluding the adoption rate of young consumers on IoT is not acceptable. The concluding remarks of the study stated as IoT can influence the intensiveness of its usage which does not require any awareness to use the technology.

On the other hand the finding of this study turns out to be more useful information and a valuable discovery that can be considered and implemented in future studies. Among the factors studied by Macik (2017), PIIT, habit and performance expectancy have very high positive impact on the behavioral intention to use IoT. However interestingly the study denied the negative impact of the lack of funds to use IoT and pointed out it has no relevance to the adoption of IoT, even though some IoT applications seem to be costly. The cause for lack of awareness is that the consumers even use IoT devices. They use different work technologies to connect to them. They did not imagine the 'umbrella' concept because they tend to integrate them which may eventually lead to underutilization of IoT. In the light of declared reasons the author shows that young consumers do not see the real usefulness of IoT and have no intention to purchase IoT enabled devices in future. The study had several significant limitations. Firstly it uses UNI ANOVA, where the intercept did not capture all the influencing factors of the model giving rise to severe questions where only the concluded factors have impact on adopting IoT. Next the study lack adequate construct reliability thus failed to validate the UTAUT2 model for IoT adoption. Even though the model fitted data and had ethical explanatory values it failed to incorporate other possibilities relevant to adoption factors.

As studies on IoT are still new, many attempts to do qualitative researches to identify the factors that impact the intention to use new technology. Kowatsch and Mass (2012) study the intention to use IoT in Spain. When they interviewed 31 people who are experts in IoT, with the motive to validate a conceptual framework for IoT, that includes expected usefulness, perceived IoT privacy, personal interest in IoT, and trust in IoT services. The study showed that perceived privacy risk, legislation, personal interest, transparency of user information, and data security have a more significant influence on the intention to use IoT. In a similar study, Caughlan et al. (2012) conducted exploratory research on IoT adoption, where using both qualitative and quantitative approaches. Data were collected from 35 respondents. The results showed that usefulness, privacy, ease of use, awareness of the technology and knowledge were the critical factors of IoT adoption.

II. Methodology

a) Conceptual framework

In this study figure 2.5 present the conceptual framework (research model) of the study. The framework was adopted by combining UTAUT and UTAUT2 models. Along with main UTAUT factors (Effort expectancy, Performance Expectancy, Facilitating Conditions, Social Influence). Also this model is expanded by the addition of provincial areas and employee demographics.

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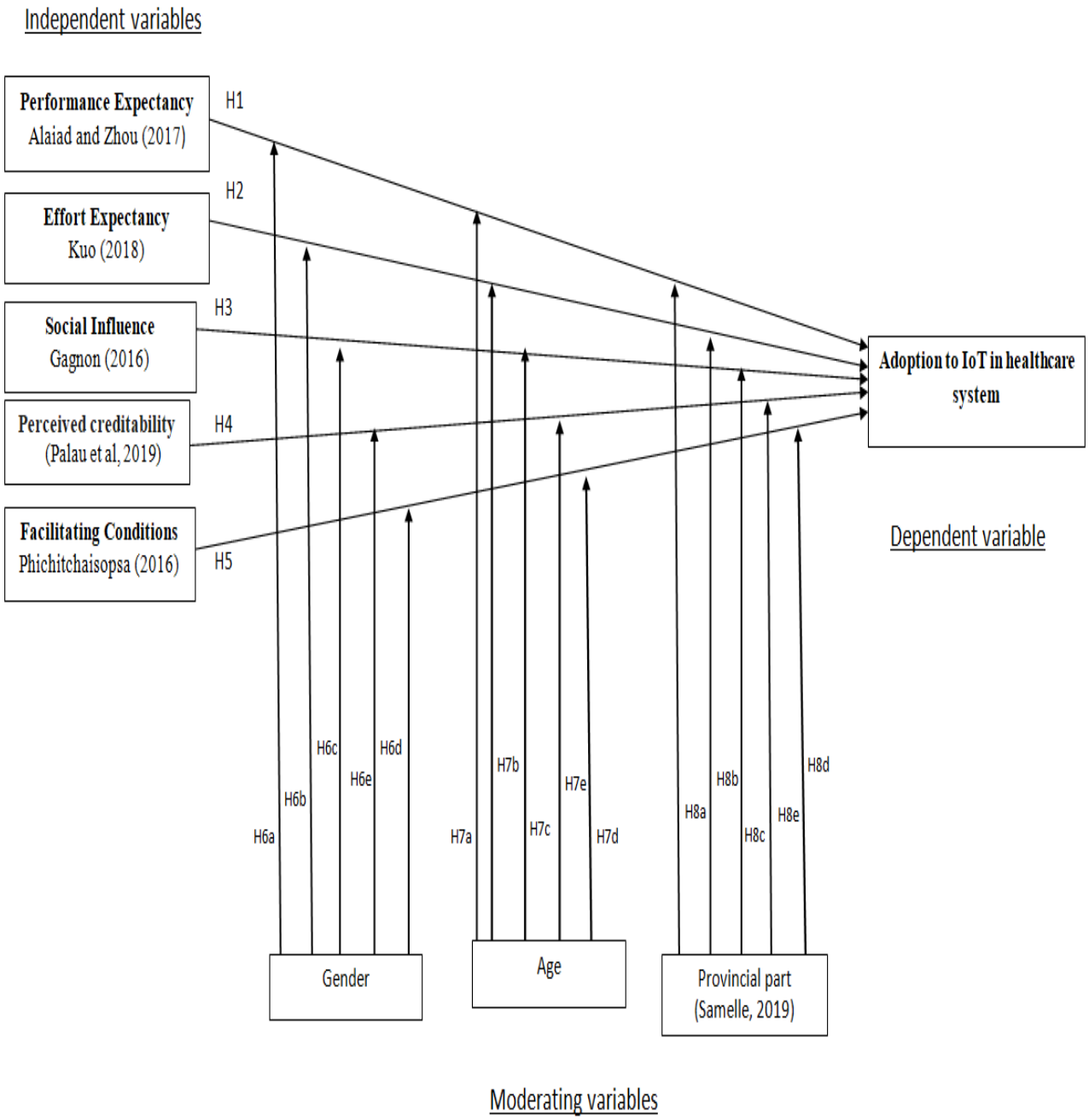


Figure 6: Research model

(Developed by author by expanding UTAUT model with additional variables from reviewed literatures)

b) Sampling of the study

The target population is physicians who work in different provinces of Sri Lanka. The focus of the study was on the physicians, who are registered at Sri Lanka Medical Council (SLMC), the authorized government body of the country. According to the Ministry of Health (2019), there are 33,116 physicians of 995 hospitals working in the country. In 2017 Information and Communication Technology Agency (ICTA) of Sri Lanka; the Specialty Board in Biomedical Informatics, Postgraduate Institute of Medicine, University of Colombo (PGIM); and the Health Informatics Society of Sri Lanka (HISSL) collaboratively published the number of hospitals that use IoT technology in each province of Sri Lanka in their booklet named "Digital health in Sri Lanka". The population for this study is considered to be 16,558. Krejcie and Morgan, (2010) table cited by Connaway and Powell (2010) was used in determining the sample size of the population. Therefore, the sample size of this study was taken as 375.

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c) Survey Instrumentation

The survey instrument of the present study is a questionnaire administrated personally by an allocated data collection team. This enabled us to collect the completed responses within the allocated period. It also enabled the respondents to clarify any doubts at the same time if there was any. The questionnaire that was prepared by the researcher was to be answered within not more than ten minutes of the respondent's time. Furthermore, it ensured is to be completely anonymous and confidential, in case if there were any particular questions the respondents did not want to answer. The entire questionnaire was constructed in English and in layman terms to ensure that it would not cause any inconvenience and time consuming to the respondents. The subjects for this study include physicians who work for hospitals in each provincial area of Sri Lanka. Initially, 45 questionnaires were distributed to the participants for the pilot study in two hospitals and 40 responses were received (92% response rate for the pilot study).Finally 480 questionnaires were distributed to physicians, 394 questionnaires were returned. Eight questionnaires were discarded due to invalid responses (many incomplete answers). Thus, 386 usable questionnaires were yielded which resulted in 77.4 % response rate across the 28 hospitals (Table 3.3).

d) Hypotheses Testing

Byne (1989) described the objective of a structural model is to explain the direct or indirect relationships with other constructs. Thus, the purpose of the structural model in this study is to test the research objectives and the hypotheses of the study. The final structural model was developed after reviewing the final measurement model. The sturtral model of the research were generated using SPSS V26 an D AMOS V26. Hypotheses were tested through the proposed final model of the study, which was developed by the final structural model. Summary conclusions for the nine hypothesized relationships are provided in Table 6.

III. Results

a) Demographic Profile

Employee demographics are referred as the characteristics of the healthcare professional. Along with the UTAUT hypothesis, three main factors determine the relationship with other moderators. They are of gender, experience, and age. According to Venkatesh et al., (2003); Burtonjohes and Hubona (2006); Yu et al. (2009), and Kijsasnoyotin et al. (2009), this moderator have more significant impact on behavioral intention to adopt new technologies.

This study considers eight demographic factors (as per the questionnaire Appendix -2A) as follows. The job status of the 375 respondents; 48.5% are Medical officers, 34.5% are Resident officers 34.5%, 11.5% Full-time General physician and 5.5% are Full-time Surgeon/Specialist. The composition of the sample indicated that 46.9% of respondents are represented by females while the remaining 53.1% are represented by male respondents. The study reveals that the largest group of respondents fell into the 30-35 years age group (38.5%). Of the rest, 23.5% are of 35-40 year age group, followed closely by the 41-45 age groups at 21% and only 8 respondents are above the 50 year age group. the work experience of the studied 375 respondents, 44.5% have below 2 years of experience and 25.5% have 3-5 years of experience. Out of the total respondents, 17% have more than 7 years of experience in the existing health care organization. The type of occupied hospital of the 375 respondents. Out of the total respondent 52.3% are working in the community hospital, 11.7% are working in private hospital and 9.3% are working in government hospitals. The duration spend in mobile by the 375 respondents, shows 44.5% use mobile for more than 3 hours whereas only 26% rarely use mobile, followed by 17.6% of the respondents use less than one hour. The work experience of the 375 respondents, 68.8% uses mobile health, 15.2% uses patient record access and 13.9% uses Hospital in build RFID.

Table 1: Type of IoT technology used by the respondents

	Frequency	Percent
Hospital in-build RFID patient monitoring	52	13.9
Mobile health	258	68.8
Patient record access	57	15.2
Others	8	2.1
Total	375	100.0

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b) Testing the Moderating Effect

1. Testing the moderating effect of Gender (Hyphothesis-1)

The moderating effect for the model with latent constructs (Gender) was analyzed using Multi-Group CFA. The procedure will estimate the two models separately. One is the constrained model while the other one is the unconstrained model. For the test to be significant, the difference in Chi-Square value must be higher than the value of Chi-Square with 1 degree of freedom, which is 3.84.

Table 1: Moderating effect of Gender on technological factors - Adoption relationship

Effort Expectancy	Model	Chi-square	df	Change in Chi-square	Change in df
Male	Unconstrained	1194.8	717	58.4	1
	Constrained	1253.2	718		
Female	Unconstrained	1130.63	717	76.65	1
	Constrained	1207.28	718		
Performance Expectancy	Model	Chi-square	df	Change in Chi-square	Change in df
Male	Unconstrained	1194.8	717	16	1
	Constrained	1210.8	718		
Female	Unconstrained	1130.63	717	21.9	1
	Constrained	1152.53	718		
Social Influence	Model	Chi-square	df	Change in Chi-square	Change in df
Male	Unconstrained	1194.8	717	7.32	1
	Constrained	1201.9	718		
Female	Unconstrained	1130.63	717	8.21	1
	Constrained	1138.84	718		
Facilitating Conditions	Model	Chi-square	df	Change in Chi-square	Change in df
Male	Unconstrained	1194.8	717	6.8	1
	Constrained	1201.6	718		
Female	Unconstrained	1130.63	717	3.67	1
	Constrained	1134.3	718		
Perceived creditability	Model	Chi-square	df	Change in Chi-square	Change in df
Male	Unconstrained	1194.8	717	9.46	1
	Constrained	1204.26	718		
Female	Unconstrained	1130.63	717	7.07	1
	Constrained	1137.7	718		

2. Testing the Moderating Effect of Age (Hyphothesis-2)

To test the moderator effect for observed variables (Age, provincial part), in addition to the variable X(independent), M (moderator), and Y(dependent), a new variable namely XM from the product of X multiply M was created. Thus, the variables involve will be X, Y, M, and XM. The information can be modeled in the following regression equation:

$$Y = \beta 0 + \beta 1X + \beta 2M + \beta 3XM + e1$$

Using AMOS the regression coefficient and P value were generated. If the P-value for XM is less than 0.05 then the moderator has significant effect on the relationship between independent and dependent variables.

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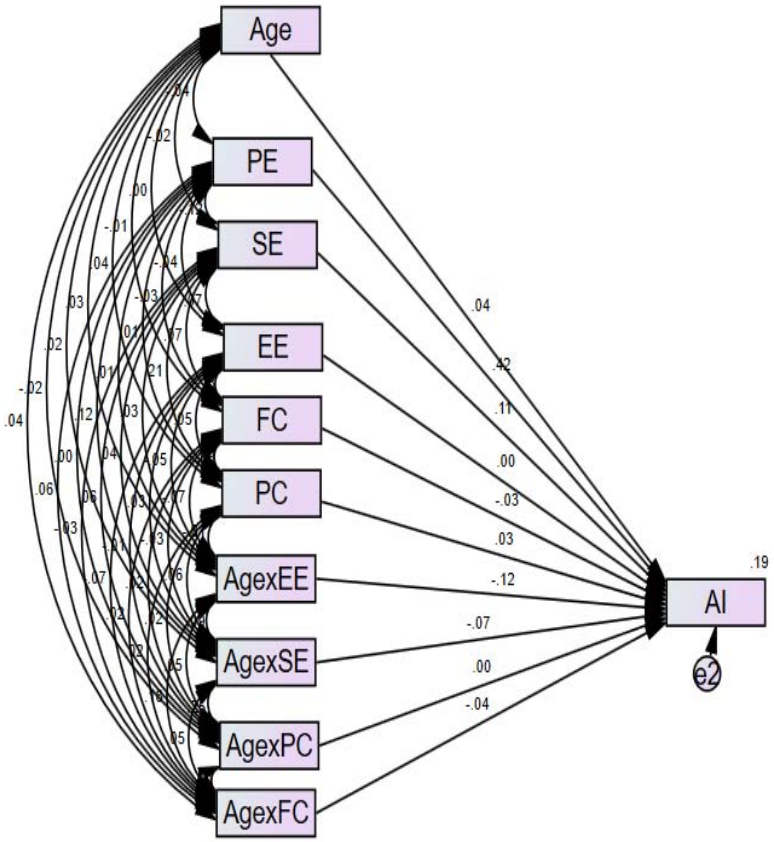


Figure 7: Path model for the moderating effect of Age, (Generated via AMOS v26)

3. Testing the moderating effect of Provincial area (Hyphothesis-3)

Before testing the moderating effect, provincial part constructs were assessed with the internal consistency reliability (Cronbach's alpha), the descriptive summary and the inter-item correlation values. Each item in the construct was measured on a Likert scale of 1 to 5, where a response of 1 indicates strong disagreement while a value of 5 indicates strong agreement to the statements. There are eight items in this construct (Appench -2 A). The statements are formulated as positive. Cronbatch's alpha was 0.916. The highest correlation for each item with at least one other item in the construct is between .3 and .9 (Table 4.31). Thus, all the items correlate adequately in the construct.

Table 2: Descriptive statistics for items in the Provincial part (PA)

Descriptive statistics			Inter-Item Correlation Matrix				
Item	Mean	Std. Deviation	PA1	PA2	PA3	PA4	PA5
PA1	3.68	1.238	1.000	.887	.714	.652	.677
PA2	3.66	1.263	.887	1.000	.656	.566	.578
PA3	3.38	1.300	.714	.656	1.000	.695	.691
PA4	3.58	1.238	.652	.566	.695	1.000	.756
PA5	3.61	1.200	.677	.578	.691	.756	1.000

The provincial areas in the country have a significant impact on the level of IoT acceptance. For instance, healthcare in the capital usually is updated technology with the support of healthcare administrators. This might have a considerable positive impact on the ease of technology. Also difference toward technology acceptance can affect behavioral intention in different provincial areas. Studies conducted in United States as well as in India showed the relationship between different provincial areas and different technological cultures. Kakoli and Soumava (2008), in their study, showed that the provincial area impacts the behavioral intention toward use of technology.

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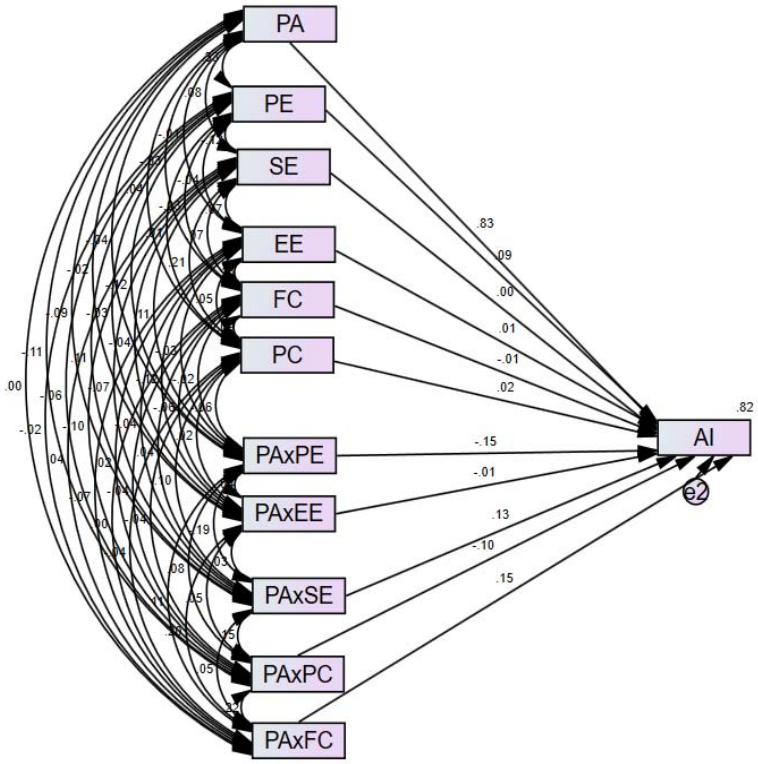


Figure 8: Path model for the moderating effect of provincial area (Generated via AMOS v26)

They future stated that cultural identity of difference in provincial areas as well as different countries could invoke drastically on people. Li and Kirkup (2007) showed that use of technology varies between Chinese and British students. Mainly on use of internet, their level of perceived usefulness, and their ability to access knowledge. Moreover cross-cultural differences also have a considerable effect on IoT acceptance factors.

Research by Oshlqansky et al. (2007) indicated that social influences have a significant impact on all country samples, where cross-cultural differences to affect the actual results. Thus studying the impact of cross-cultural differences in technology acceptance is suitable enough. This may be useful to comparatively analysis countries with numerous provincial areas such as China, Thailand, India or Sri Lanka. Also, Sri Lanka, a country with multiple ethnicities has different cultures in different provincial areas. These provinces have differences in various fields, including local dialect, local foods, and, more importantly access to technology. Furthermore the doctor-patient ratio drastically varies among these provinces. For example Western province (i.e., Colombo) has average of 2.5 doctor/patient ratio, whereas in Central province (i.e., Nuwaraliya) has 0.37 of that. Therefore the research is interested in study the provincial area as a modulator of technology acceptance factor.

There are numerous studies carried out concerning the relationship between province areas and technological acceptance Yu et al., (2009) studied user acceptance with respect to the prepayment between United States and India. Because these two countries are different and opposite poles with respect to culture, the study found that Effort expectancy, Social influence, Performance expectancy positively impact the intention of user toward use of prepayment system of these countries, whereas different cultures within the countries affect behavioral intention. A study by Mun Lee (2014) investigated the technology another acceptance level cross-culturally. They studied nine countries, including Malaysia, South Arabia, New Zealand, South Africa, Czech Republic, United States and India, United Kingdom, and Greece. The study showed that website acceptance is influenced by social influence more than in other countries.

Table 3: Result of Hypotheses tested in the study

		Results
H1a	Gender moderate Performance Expectancy in adoption towards IoT in the healthcare system	Supported
H1b	Gender moderate Effort Expectancy in adoption towards IoT in the healthcare system	Supported
H1c	Gender moderate Social Influence in adoption towards IoT in the healthcare system	Not Supported

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H1d	Gender moderate Facilitating Conditions in adoption towards adopt IoT in the healthcare system	Not Supported
H1e	Gender moderate Perceived Creditability in adoption towards IoT in the healthcare system	Supported
H2a	Age moderate Performance Expectancy in adoption towards IoT in the healthcare system	Not Supported
H2b	Age moderate Effort Expectancy in adoption towards IoT in the healthcare system	Supported
H2c	Age moderate Social Influence in adoption towards IoT in the healthcare system	Supported
H2d	Age moderate Facilitating Conditions in adoption towards IoT in the healthcare system	Supported
H2e	Age moderate Perceived Creditability in adoption towards IoT in the healthcare system	Not Supported
H3a	Provincial area moderate Performance Expectancy in adoption towards IoT in the healthcare system.	Not Supported
H3b	Provincial area moderate Effort Expectancy in adoption towards IoT in the healthcare system	Not Supported
H3c	Provincial area moderate Social influence in adoption towards IoT in the healthcare system	Supported
H3d	Provincial area moderate Facilitating Condition in adoption towards IoT in the healthcare system	Supported
H3e	Provincial area moderate Perceived Creditability in adoption towards IoT in the healthcare system	Supported

significantly different in their beliefs about the benefits'

IV. Discussion

a) Impact of gender as moderator in adoption towards IoT

The five hypotheses (H1a-H1e) as revealed in Table 3, examine the impact of gender as moderator in adoption towards IoT. For performance expectancy, the research results differ from the UTAUT findings for the moderator of gender. Consequently, females who are part of the healthcare staff should focus on explaining the benefits of IoT technology rather than the processes involved.

Besides, the male group was affected by these modulators with regards to effort expectancy. This suggests that they should demonstrate an understanding of healthcare technology usage, as well as its convenience, ease of use, and lack of complications; until they would like for it to be usable. Almost all those surveyed who were male and in the older age group were physicians. Physicians mainly have a critical role in treating patients. The researcher expects that physicians' time is limited. Therefore they want their work with technology to be easy.

Sometimes, physicians want to be able to find information by themselves. Therefore, many reasons provide motivation for studying healthcare technology.

Gender was found insignificant in modulating the relationship between effort expectancy and the adoption of IoT in hospitals, which is the opposite of much previous research including the findings from Hu, *et al. (*1999), Kuan and Chau (2001), Zhu, *et al.* (2006a), Lin and Lin (2008), Alam (2009) and Ramdani *et al.* (2009), all of whom have suggested that gender is significant for the adoption of technology in both the individual and the organizational contexts; but in line with Chau and Tam (1997), Thiesse *et al.* (2011, Partially) and Wang *et al.* (2016). Chau and Tam (1997) argued that adopters and non-adopters '*are not* (pp14). Wang *et al.* (2016) argued that the insignificance was caused by the fact that the adopters and non-adopter think almost the same regarding the advantages technology brings, and this study reflected the same.

Contrary to the findings of Anne, *et al. (*2010), Zhu, *et al.* (2016a), Alam (2019), Ramdani *et al.* (2013) and Wang, *et al. (*2016), but in line with the findings from Lin and Lin (2018), Ramdani *et al. (*2019), Thiesse *et al. (*2011), Oliveira *et al.* (2014) and Gutierrez *et al.* (2015), *compatibility* is found to be insignificant. Lin and Lin (2018) argued that adopters might already have made the changes necessary for adoption. Ramdani *et al.* (2019) explained that the insignificance might be because the adopters do not have many things to integrate with the new adoption. Thiesse *et al. (*2011) think the reason for insignificance in their research lies with the sample, as the sample used contained only adopters. Oliveira *et al.* (2014) attributed the result to the nature of the technology being adopted in their research.

b) Impact of age as moderator in adoption towards IoT

The hypotheses (H2a-H2e) examine the impact of age as moderator in adoption towards IoT. This study presented that the intention to adopt IoT by physicians is higher in younger people. In UTAUT2, age is a moderator of performance expectancy to behavioral intention, concluding that performance expectancy's effect is stronger for younger respondents. The average age of respondents in this study is 27.75 (SD=6.7). In correlation analysis, age did not show significant correlations to any constructs, but the highest correlation was demonstrated with facilitating

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conditions. This relation explains that younger people, with an average age of 27, are the ones who have supported conditions to adopt IoT by physicians. This is because the new generation of physician works with colleagues of same age who always use updated healthcare technology like IoT.

c) *Impact of provincial areas as moderator in adoption towards IoT*

The hypotheses (H3a-H3e) examine the impact of provincial areas as moderator in adoption towards IoT. The study revealed that the provincial area has a positive impact over facilitating conditions towards behavioral intention of the physicians, this result is in line with the study carried out by Kakoli and Soumava (2018), there were different regarding the access of technology (i.e., prepayment acceptance) between countries such as India and USA. They conclude that country or provincial areas have serious impact on acceptance of technology, on all the dimensions of the technology acceptance, refereed in UTAUT. However this study showed positive moderator of provincial area only in social influence and facilitating conditions.

Concerning Sri Lanka, the availability of healthcare technology varies among the provincial area. On the one hand the western province enjoys hospitals utilized with high technology, whereas, on the other hand, Central province has district hospitals with simple technology settings. It has widely complained that the government of Sri Lanka did not diffuse healthcare technology (i.e., IoT) equally to all province of the country, causing significant adoption toward novel healthcare technology like IoT. The differences in such availability of technology might reason the moderato effect of the provincial area towards adoption of IoT.

The study by Kavin (2017) also showed that personal attitude perceived behavioral control as well as Social influence is moderated positively by the cross cultural difference between different provincial areas. This is in line with the Srilankan context because Sri Lanka is a country with multiple cultures and languages. It could be reasoned that differences in norms, believes among multi-culture may impact the behavioral intention towards IoT. The study by Manassis (2016) interpreted a case study, showing that cultural differences of the patient have a more significant impact on physician patient relationship. Mainly when there is a difference in patient's cultural background from physician'. This, in turn, causes poor communication as well as unsatisfactory treatment results leading to dissatisfaction of physicians toward the use of treatment strategies, including IoT technology.

Social influence also incorporates the hospital culture. Moreover, study by Chen et al. (2016) showed that variation in hospital culture among difference provinces of China has positive effect on clinical physicians; this is in line with the result of this study. Facilitating conditions of each provincial area must provide equal support to all provincial areas of the country, including software, hardware, IT staff and patient awareness towards IoT technology. To overcome these issue administrators need to define policy to IT staff regarding salary and benefit which could also promote IoT among healthcare staff.

In conclusion, the result is in line with the statement made by Jeyaraj *et al. (*2006) that the provincial area is one of the best predictors in organizational adoption research; the provincial area has also been found by Ramdani *et al. (*2009) as the most significant variable. Alam (2009), Thiesse *et al. (*2011), and Oliveira *et al.* (2014) all found provincial area to be an essential factor that influences the adopting of IoT. Most of the studies tend to agree with Jeyaraj *et al. (*2006) by reporting it as an impacting factor in an adoption decision (Zhu and Kraemer 2005; Zhu *et al.* 2006a, 2006b; Ramdani *et al.* 2009, 2013; Oliveira *et al.* 2014 and Wang *et al.* 2016). Thong (1999) argued that firm residence is the most influential factor in determining the adoption of IoT.

V. Conclusion

An extensive amount of literature has been published related to technology acceptance or adoption. However, a very lack of studies covered the topic of IoT at hospital adoption. As an example, from 92 references used to study the adoption of IoT in the healthcare industry, using UTAUT, only one paper discussed a similar field (Park et al., 2018). Regarding the theoretical implications, this study contributed to the development of the UTAUT2 model, specifically in the field of IoT at hospital adoption. By extending UTAUT2 with other significant variables, such as perceived creditability and attitude, this study brought the novel insights into consideration for further research. UTAUT2 argued that the most influential antecedent to adoption intention was performance expectancy. This study gave a new perspective to identify trust as an influential factor driving intention to adopt IoT technology.

This study provided insights for companies, to understand better what the determinants of adopting IoT products are. From the result of the study, it could be concluded that, firstly, the company might gain more consumers' intention to adopt IoT by building trust. This trust concept consisted of two, namely trust to the company and trust in the product. In order to get trust in the company, it might be essential to establish proper relationships with users, offer friendly customer service, create a pleasant customer journey or convince that the company has excellent quality products. Furthermore, trust in the product might be earned by highlighting that the product is secure and created to help users.

Secondly, marketers should consider the strategical ways to promote the usefulness of the

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product. This could be achieved by utilizing the social influence or communicating the message through the right channels. This study argued that family, friends, and colleagues might contribute to consumers' intention to adopt IoT products. It was also substantial to note that people who are important to consumers or people who influence their behaviors played a critical role in shaping their minds.

Another finding in this study discovered that younger and innovative people are more likely to adopt IoT products. Hence, marketers might consider to target young people and reach consumers who like to explore new technologies. Besides, this study also implicated that consumers who have sufficient resources and knowledge toward IoT at home have a higher intention to adopt. The company could help to provide these facilitating conditions, such as providing the easy-to-read information about the product, the ease to deliver products to home, or guidance when consumers find difficulties.

The research suggests that increasing physician's adoption towards IoT and healthcare organizations should create awareness of IoT products. This could be done in two comprehensive stages; first increase awareness among healthcare staff, which should be focus on the way to bring business benefits to the organization. Secondly awareness should be created among the patients, the final customers of IoT technology, which should be focused on enhancing both novelty and quality of IoT enabled healthcare products (i.e., Smart watch).

However, the IoT technology is still in its early premature stage of development and requires an intense evangelization. To a certain extent, this research had identified the critical factors that impact adoption towards IoT in healthcare industry in the Sri Lankan context. Then results were supported by the empirical study of the research and can be implemented both theoretical as well as managerial context to impose radical change in the field of technology adoption of healthcare industry.

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- Abstract: font size 9 with the word "Abstract" in bold italics.
- Main text: font size 10 with two justified columns.
- Two columns with equal column width of 3.38 and spacing of 0.2.
- First character must be three lines drop-capped.
- The paragraph before spacing of 1 pt and after of 0 pt.
- Line spacing of 1 pt.
- Large images must be in one column.
- The names of first main headings (Heading 1) must be in Roman font, capital letters, and font size of 10.
- The names of second main headings (Heading 2) must not include numbers and must be in italics with a font size of 10.

Structure and Format of Manuscript

The recommended size of an original research paper is under 15,000 words and review papers under 7,000 words. Research articles should be less than 10,000 words. Research papers are usually longer than review papers. Review papers are reports of significant research (typically less than 7,000 words, including tables, figures, and references)

A research paper must include:

a) A title which should be relevant to the theme of the paper.
b) A summary, known as an abstract (less than 150 words), containing the major results and conclusions.
c) Up to 10 keywords that precisely identify the paper's subject, purpose, and focus.
d) An introduction, giving fundamental background objectives.
e) Resources and techniques with sufficient complete experimental details (wherever possible by reference) to permit repetition, sources of information must be given, and numerical methods must be specified by reference.
f) Results which should be presented concisely by well-designed tables and figures.
g) Suitable statistical data should also be given.
h) All data must have been gathered with attention to numerical detail in the planning stage.

Design has been recognized to be essential to experiments for a considerable time, and the editor has decided that any paper that appears not to have adequate numerical treatments of the data will be returned unrefereed.

i) Discussion should cover implications and consequences and not just recapitulate the results; conclusions should also be summarized.
j) There should be brief acknowledgments.
k) There ought to be references in the conventional format. Global Journals recommends APA format.

Authors should carefully consider the preparation of papers to ensure that they communicate effectively. Papers are much more likely to be accepted if they are carefully designed and laid out, contain few or no errors, are summarizing, and follow instructions. They will also be published with much fewer delays than those that require much technical and editorial correction.

The Editorial Board reserves the right to make literary corrections and suggestions to improve brevity.



Format Structure

It is necessary that authors take care in submitting a manuscript that is written in simple language and adheres to published guidelines.

All manuscripts submitted to Global Journals should include:

Title

The title page must carry an informative title that reflects the content, a running title (less than 45 characters together with spaces), names of the authors and co-authors, and the place(s) where the work was carried out.

Author details

The full postal address of any related author(s) must be specified.

Abstract

The abstract is the foundation of the research paper. It should be clear and concise and must contain the objective of the paper and inferences drawn. It is advised to not include big mathematical equations or complicated jargon.

Many researchers searching for information online will use search engines such as Google, Yahoo or others. By optimizing your paper for search engines, you will amplify the chance of someone finding it. In turn, this will make it more likely to be viewed and cited in further works. Global Journals has compiled these guidelines to facilitate you to maximize the web-friendliness of the most public part of your paper.

Keywords

A major lynchpin of research work for the writing of research papers is the keyword search, which one will employ to find both library and internet resources. Up to eleven keywords or very brief phrases have to be given to help data retrieval, mining, and indexing.

One must be persistent and creative in using keywords. An effective keyword search requires a strategy: planning of a list of possible keywords and phrases to try.

Choice of the main keywords is the first tool of writing a research paper. Research paper writing is an art. Keyword search should be as strategic as possible.

One should start brainstorming lists of potential keywords before even beginning searching. Think about the most important concepts related to research work. Ask, “What words would a source have to include to be truly valuable in a research paper?” Then consider synonyms for the important words.

It may take the discovery of only one important paper to steer in the right keyword direction because, in most databases, the keywords under which a research paper is abstracted are listed with the paper.

Numerical Methods

Numerical methods used should be transparent and, where appropriate, supported by references.

Abbreviations

Authors must list all the abbreviations used in the paper at the end of the paper or in a separate table before using them.

Formulas and equations

Authors are advised to submit any mathematical equation using either MathJax, KaTeX, or LaTeX, or in a very high-quality image.

Tables, Figures, and Figure Legends

Tables: Tables should be cautiously designed, uncrowned, and include only essential data. Each must have an Arabic number, e.g., Table 4, a self-explanatory caption, and be on a separate sheet. Authors must submit tables in an editable format and not as images. References to these tables (if any) must be mentioned accurately.

Figures

Figures are supposed to be submitted as separate files. Always include a citation in the text for each figure using Arabic numbers, e.g., Fig. 4. Artwork must be submitted online in vector electronic form or by emailing it.

Preparation of Eletronic Figures for Publication

Although low-quality images are sufficient for review purposes, print publication requires high-quality images to prevent the final product being blurred or fuzzy. Submit (possibly by e-mail) EPS (line art) or TIFF (halftone/ photographs) files only. MS PowerPoint and Word Graphics are unsuitable for printed pictures. Avoid using pixel-oriented software. Scans (TIFF only) should have a resolution of at least 350 dpi (halftone) or 700 to 1100 dpi (line drawings). Please give the data for figures in black and white or submit a Color Work Agreement form. EPS files must be saved with fonts embedded (and with a TIFF preview, if possible).

For scanned images, the scanning resolution at final image size ought to be as follows to ensure good reproduction: line art: >650 dpi; halftones (including gel photographs): >350 dpi; figures containing both halftone and line images: >650 dpi.

Color charges: Authors are advised to pay the full cost for the reproduction of their color artwork. Hence, please note that if there is color artwork in your manuscript when it is accepted for publication, we would require you to complete and return a Color Work Agreement form before your paper can be published. Also, you can email your editor to remove the color fee after acceptance of the paper.

Tips for writing a good quality Management Research Paper

Techniques for writing a good quality management and business research paper:

1. Choosing the topic: In most cases, the topic is selected by the interests of the author, but it can also be suggested by the guides. You can have several topics, and then judge which you are most comfortable with. This may be done by asking several questions of yourself, like "Will I be able to carry out a search in this area? Will I find all necessary resources to accomplish the search? Will I be able to find all information in this field area?" If the answer to this type of question is "yes," then you ought to choose that topic. In most cases, you may have to conduct surveys and visit several places. Also, you might have to do a lot of work to find all the rises and falls of the various data on that subject. Sometimes, detailed information plays a vital role, instead of short information. Evaluators are human: The first thing to remember is that evaluators are also human beings. They are not only meant for rejecting a paper. They are here to evaluate your paper. So present your best aspect.

2. Think like evaluators: If you are in confusion or getting demotivated because your paper may not be accepted by the evaluators, then think, and try to evaluate your paper like an evaluator. Try to understand what an evaluator wants in your research paper, and you will automatically have your answer. Make blueprints of paper: The outline is the plan or framework that will help you to arrange your thoughts. It will make your paper logical. But remember that all points of your outline must be related to the topic you have chosen.

3. Ask your guides: If you are having any difficulty with your research, then do not hesitate to share your difficulty with your guide (if you have one). They will surely help you out and resolve your doubts. If you can't clarify what exactly you require for your work, then ask your supervisor to help you with an alternative. He or she might also provide you with a list of essential readings.

4. Use of computer is recommended: As you are doing research in the field of management and business then this point is quite obvious. Use right software: Always use good quality software packages. If you are not capable of judging good software, then you can lose the quality of your paper unknowingly. There are various programs available to help you which you can get through the internet.

5. Use the internet for help: An excellent start for your paper is using Google. It is a wondrous search engine, where you can have your doubts resolved. You may also read some answers for the frequent question of how to write your research paper or find a model research paper. You can download books from the internet. If you have all the required books, place importance on reading, selecting, and analyzing the specified information. Then sketch out your research paper. Use big pictures: You may use encyclopedias like Wikipedia to get pictures with the best resolution. At Global Journals, you should strictly follow here.



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6. Bookmarks are useful: When you read any book or magazine, you generally use bookmarks, right? It is a good habit which helps to not lose your continuity. You should always use bookmarks while searching on the internet also, which will make your search easier.

7. Revise what you wrote: When you write anything, always read it, summarize it, and then finalize it.

8. Make every effort: Make every effort to mention what you are going to write in your paper. That means always have a good start. Try to mention everything in the introduction—what is the need for a particular research paper. Polish your work with good writing skills and always give an evaluator what he wants. Make backups: When you are going to do any important thing like making a research paper, you should always have backup copies of it either on your computer or on paper. This protects you from losing any portion of your important data.

9. Produce good diagrams of your own: Always try to include good charts or diagrams in your paper to improve quality. Using several unnecessary diagrams will degrade the quality of your paper by creating a hodgepodge. So always try to include diagrams which were made by you to improve the readability of your paper. Use of direct quotes: When you do research relevant to literature, history, or current affairs, then use of quotes becomes essential, but if the study is relevant to science, use of quotes is not preferable.

10. Use proper verb tense: Use proper verb tenses in your paper. Use past tense to present those events that have happened. Use present tense to indicate events that are going on. Use future tense to indicate events that will happen in the future. Use of wrong tenses will confuse the evaluator. Avoid sentences that are incomplete.

11. Pick a good study spot: Always try to pick a spot for your research which is quiet. Not every spot is good for studying.

12. Know what you know: Always try to know what you know by making objectives, otherwise you will be confused and unable to achieve your target.

13. Use good grammar: Always use good grammar and words that will have a positive impact on the evaluator; use of good vocabulary does not mean using tough words which the evaluator has to find in a dictionary. Do not fragment sentences. Eliminate one-word sentences. Do not ever use a big word when a smaller one would suffice.
Verbs have to be in agreement with their subjects. In a research paper, do not start sentences with conjunctions or finish them with prepositions. When writing formally, it is advisable to never split an infinitive because someone will (wrongly) complain. Avoid clichés like a disease. Always shun irritating alliteration. Use language which is simple and straightforward. Put together a neat summary.

14. Arrangement of information: Each section of the main body should start with an opening sentence, and there should be a changeover at the end of the section. Give only valid and powerful arguments for your topic. You may also maintain your arguments with records.

15. Never start at the last minute: Always allow enough time for research work. Leaving everything to the last minute will degrade your paper and spoil your work.

16. Multitasking in research is not good: Doing several things at the same time is a bad habit in the case of research activity. Research is an area where everything has a particular time slot. Divide your research work into parts, and do a particular part in a particular time slot.

17. Never copy others' work: Never copy others' work and give it your name because if the evaluator has seen it anywhere, you will be in trouble. Take proper rest and food: No matter how many hours you spend on your research activity, if you are not taking care of your health, then all your efforts will have been in vain. For quality research, take proper rest and food.

18. Go to seminars: Attend seminars if the topic is relevant to your research area. Utilize all your resources.

19. Refresh your mind after intervals: Try to give your mind a rest by listening to soft music or sleeping in intervals. This will also improve your memory. Acquire colleagues: Always try to acquire colleagues. No matter how sharp you are, if you acquire colleagues, they can give you ideas which will be helpful to your research.

20. Think technically: Always think technically. If anything happens, search for its reasons, benefits, and demerits. Think and then print: When you go to print your paper, check that tables are not split, headings are not detached from their descriptions, and page sequence is maintained.

21. Adding unnecessary information: Do not add unnecessary information like "I have used MS Excel to draw graphs." Irrelevant and inappropriate material is superfluous. Foreign terminology and phrases are not apropos. One should never take a broad view. Analogy is like feathers on a snake. Use words properly, regardless of how others use them. Remove quotations. Puns are for kids, not grunt readers. Never oversimplify: When adding material to your research paper, never go for oversimplification; this will definitely irritate the evaluator. Be specific. Never use rhythmic redundancies. Contractions shouldn't be used in a research paper. Comparisons are as terrible as clichés. Give up ampersands, abbreviations, and so on. Remove commas that are not necessary. Parenthetical words should be between brackets or commas. Understatement is always the best way to put forward earth-shaking thoughts. Give a detailed literary review.

22. Report concluded results: Use concluded results. From raw data, filter the results, and then conclude your studies based on measurements and observations taken. An appropriate number of decimal places should be used. Parenthetical remarks are prohibited here. Proofread carefully at the final stage. At the end, give an outline to your arguments. Spot perspectives of further study of the subject. Justify your conclusion at the bottom sufficiently, which will probably include examples.

23. Upon conclusion: Once you have concluded your research, the next most important step is to present your findings. Presentation is extremely important as it is the definite medium though which your research is going to be in print for the rest of the crowd. Care should be taken to categorize your thoughts well and present them in a logical and neat manner. A good quality research paper format is essential because it serves to highlight your research paper and bring to light all necessary aspects of your research.

Informal Guidelines of Research Paper Writing

Key points to remember:

- Submit all work in its final form.
- Write your paper in the form which is presented in the guidelines using the template.
- Please note the criteria peer reviewers will use for grading the final paper.

Final points:

One purpose of organizing a research paper is to let people interpret your efforts selectively. The journal requires the following sections, submitted in the order listed, with each section starting on a new page:

The introduction: This will be compiled from reference matter and reflect the design processes or outline of basis that directed you to make a study. As you carry out the process of study, the method and process section will be constructed like that. The results segment will show related statistics in nearly sequential order and direct reviewers to similar intellectual paths throughout the data that you gathered to carry out your study.

The discussion section:

This will provide understanding of the data and projections as to the implications of the results. The use of good quality references throughout the paper will give the effort trustworthiness by representing an alertness to prior workings.

Writing a research paper is not an easy job, no matter how trouble-free the actual research or concept. Practice, excellent preparation, and controlled record-keeping are the only means to make straightforward progression.

General style:

Specific editorial column necessities for compliance of a manuscript will always take over from directions in these general guidelines.

To make a paper clear: Adhere to recommended page limits.

Mistakes to avoid:

- Insertion of a title at the foot of a page with subsequent text on the next page.
- Separating a table, chart, or figure—confine each to a single page.
- Submitting a manuscript with pages out of sequence.
- In every section of your document, use standard writing style, including articles ("a" and "the").
- Keep paying attention to the topic of the paper.



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- Use paragraphs to split each significant point (excluding the abstract).
- Align the primary line of each section.
- Present your points in sound order.
- Use present tense to report well-accepted matters.
- Use past tense to describe specific results.
- Do not use familiar wording; don't address the reviewer directly. Don't use slang or superlatives.
- Avoid use of extra pictures—include only those figures essential to presenting results.

Title page:

Choose a revealing title. It should be short and include the name(s) and address(es) of all authors. It should not have acronyms or abbreviations or exceed two printed lines.

Abstract: This summary should be two hundred words or less. It should clearly and briefly explain the key findings reported in the manuscript and must have precise statistics. It should not have acronyms or abbreviations. It should be logical in itself. Do not cite references at this point.

An abstract is a brief, distinct paragraph summary of finished work or work in development. In a minute or less, a reviewer can be taught the foundation behind the study, common approaches to the problem, relevant results, and significant conclusions or new questions.

Write your summary when your paper is completed because how can you write the summary of anything which is not yet written? Wealth of terminology is very essential in abstract. Use comprehensive sentences, and do not sacrifice readability for brevity; you can maintain it succinctly by phrasing sentences so that they provide more than a lone rationale. The author can at this moment go straight to shortening the outcome. Sum up the study with the subsequent elements in any summary. Try to limit the initial two items to no more than one line each.

Reason for writing the article—theory, overall issue, purpose.

- Fundamental goal.
- To-the-point depiction of the research.
- Consequences, including definite statistics—if the consequences are quantitative in nature, account for this; results of any numerical analysis should be reported. Significant conclusions or questions that emerge from the research.

Approach:

- Single section and succinct.
- An outline of the job done is always written in past tense.
- Concentrate on shortening results—limit background information to a verdict or two.
- Exact spelling, clarity of sentences and phrases, and appropriate reporting of quantities (proper units, important statistics) are just as significant in an abstract as they are anywhere else.

Introduction:

The introduction should "introduce" the manuscript. The reviewer should be presented with sufficient background information to be capable of comprehending and calculating the purpose of your study without having to refer to other works. The basis for the study should be offered. Give the most important references, but avoid making a comprehensive appraisal of the topic. Describe the problem visibly. If the problem is not acknowledged in a logical, reasonable way, the reviewer will give no attention to your results. Speak in common terms about techniques used to explain the problem, if needed, but do not present any particulars about the protocols here.

The following approach can create a valuable beginning:

- Explain the value (significance) of the study.
- Defend the model—why did you employ this particular system or method? What is its compensation? Remark upon its appropriateness from an abstract point of view as well as pointing out sensible reasons for using it.
- Present a justification. State your particular theory(-ies) or aim(s), and describe the logic that led you to choose them.
- Briefly explain the study's tentative purpose and how it meets the declared objectives.

Approach:

Use past tense except for when referring to recognized facts. After all, the manuscript will be submitted after the entire job is done. Sort out your thoughts; manufacture one key point for every section. If you make the four points listed above, you will need at least four paragraphs. Present surrounding information only when it is necessary to support a situation. The reviewer does not desire to read everything you know about a topic. Shape the theory specifically—do not take a broad view.

As always, give awareness to spelling, simplicity, and correctness of sentences and phrases.

Procedures (methods and materials):

This part is supposed to be the easiest to carve if you have good skills. A soundly written procedures segment allows a capable scientist to replicate your results. Present precise information about your supplies. The suppliers and clarity of reagents can be helpful bits of information. Present methods in sequential order, but linked methodologies can be grouped as a segment. Be concise when relating the protocols. Attempt to give the least amount of information that would permit another capable scientist to replicate your outcome, but be cautious that vital information is integrated. The use of subheadings is suggested and ought to be synchronized with the results section.

When a technique is used that has been well-described in another section, mention the specific item describing the way, but draw the basic principle while stating the situation. The purpose is to show all particular resources and broad procedures so that another person may use some or all of the methods in one more study or referee the scientific value of your work. It is not to be a step-by-step report of the whole thing you did, nor is a methods section a set of orders.

Materials:

Materials may be reported in part of a section or else they may be recognized along with your measures.

Methods:

- Report the method and not the particulars of each process that engaged the same methodology.
- Describe the method entirely.
- To be succinct, present methods under headings dedicated to specific dealings or groups of measures.
- Simplify—detail how procedures were completed, not how they were performed on a particular day.
- If well-known procedures were used, account for the procedure by name, possibly with a reference, and that's all.

Approach:

It is embarrassing to use vigorous voice when documenting methods without using first person, which would focus the reviewer's interest on the researcher rather than the job. As a result, when writing up the methods, most authors use third person passive voice.

Use standard style in this and every other part of the paper—avoid familiar lists, and use full sentences.

What to keep away from:

- Resources and methods are not a set of information.
- Skip all descriptive information and surroundings—save it for the argument.
- Leave out information that is immaterial to a third party.

Results:

The principle of a results segment is to present and demonstrate your conclusion. Create this part as entirely objective details of the outcome, and save all understanding for the discussion.

The page length of this segment is set by the sum and types of data to be reported. Use statistics and tables, if suitable, to present consequences most efficiently.

You must clearly differentiate material which would usually be incorporated in a study editorial from any unprocessed data or additional appendix matter that would not be available. In fact, such matters should not be submitted at all except if requested by the instructor.



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Content:

- Sum up your conclusions in text and demonstrate them, if suitable, with figures and tables.
- In the manuscript, explain each of your consequences, and point the reader to remarks that are most appropriate.
- Present a background, such as by describing the question that was addressed by creation of an exacting study.
- Explain results of control experiments and give remarks that are not accessible in a prescribed figure or table, if appropriate.
- Examine your data, then prepare the analyzed (transformed) data in the form of a figure (graph), table, or manuscript.

What to stay away from:

- Do not discuss or infer your outcome, report surrounding information, or try to explain anything.
- Do not include raw data or intermediate calculations in a research manuscript.
- Do not present similar data more than once.
- A manuscript should complement any figures or tables, not duplicate information.
- Never confuse figures with tables—there is a difference.

Approach:

As always, use past tense when you submit your results, and put the whole thing in a reasonable order.

Put figures and tables, appropriately numbered, in order at the end of the report.

If you desire, you may place your figures and tables properly within the text of your results section.

Figures and tables:

If you put figures and tables at the end of some details, make certain that they are visibly distinguished from any attached appendix materials, such as raw facts. Whatever the position, each table must be titled, numbered one after the other, and include a heading. All figures and tables must be divided from the text.

Discussion:

The discussion is expected to be the trickiest segment to write. A lot of papers submitted to the journal are discarded based on problems with the discussion. There is no rule for how long an argument should be.

Position your understanding of the outcome visibly to lead the reviewer through your conclusions, and then finish the paper with a summing up of the implications of the study. The purpose here is to offer an understanding of your results and support all of your conclusions, using facts from your research and generally accepted information, if suitable. The implication of results should be fully described.

Infer your data in the conversation in suitable depth. This means that when you clarify an observable fact, you must explain mechanisms that may account for the observation. If your results vary from your prospect, make clear why that may have happened. If your results agree, then explain the theory that the proof supported. It is never suitable to just state that the data approved the prospect, and let it drop at that. Make a decision as to whether each premise is supported or discarded or if you cannot make a conclusion with assurance. Do not just dismiss a study or part of a study as "uncertain."

Research papers are not acknowledged if the work is imperfect. Draw what conclusions you can based upon the results that you have, and take care of the study as a finished work.

- You may propose future guidelines, such as how an experiment might be personalized to accomplish a new idea.
- Give details of all of your remarks as much as possible, focusing on mechanisms.
- Make a decision as to whether the tentative design sufficiently addressed the theory and whether or not it was correctly restricted. Try to present substitute explanations if they are sensible alternatives.
- One piece of research will not counter an overall question, so maintain the large picture in mind. Where do you go next? The best studies unlock new avenues of study. What questions remain?
- Recommendations for detailed papers will offer supplementary suggestions.

Approach:

When you refer to information, differentiate data generated by your own studies from other available information. Present work done by specific persons (including you) in past tense.

Describe generally acknowledged facts and main beliefs in present tense.

The Administration Rules

Administration Rules to Be Strictly Followed before Submitting Your Research Paper to Global Journals Inc.

Please read the following rules and regulations carefully before submitting your research paper to Global Journals Inc. to avoid rejection.

Segment draft and final research paper: You have to strictly follow the template of a research paper, failing which your paper may get rejected. You are expected to write each part of the paper wholly on your own. The peer reviewers need to identify your own perspective of the concepts in your own terms. Please do not extract straight from any other source, and do not rephrase someone else's analysis. Do not allow anyone else to proofread your manuscript.

Written material: You may discuss this with your guides and key sources. Do not copy anyone else's paper, even if this is only imitation, otherwise it will be rejected on the grounds of plagiarism, which is illegal. Various methods to avoid plagiarism are strictly applied by us to every paper, and, if found guilty, you may be blacklisted, which could affect your career adversely. To guard yourself and others from possible illegal use, please do not permit anyone to use or even read your paper and file.

Criterion for Grading a Research Paper (Compilation) by Global Journals

Please note that following table is only a Grading of "Paper Compilation" and not on "Performed/Stated Research" whose grading solely depends on Individual Assigned Peer Reviewer and Editorial Board Member. These can be available only on request and after decision of Paper. This report will be the property of Global Journals.

Topics	Grades		
	A-B	**C-D**	**E-F**
Abstract	Clear and concise with appropriate content, Correct format. 200 words or below	Unclear summary and no specific data, Incorrect form Above 200 words	No specific data with ambiguous information Above 250 words
Introduction	Containing all background details with clear goal and appropriate details, flow specification, no grammar and spelling mistake, well organized sentence and paragraph, reference cited	Unclear and confusing data, appropriate format, grammar and spelling errors with unorganized matter	Out of place depth and content, hazy format
Methods and Procedures	Clear and to the point with well arranged paragraph, precision and accuracy of facts and figures, well organized subheads	Difficult to comprehend with embarrassed text, too much explanation but completed	Incorrect and unorganized structure with hazy meaning
Result	Well organized, Clear and specific, Correct units with precision, correct data, well structuring of paragraph, no grammar and spelling mistake	Complete and embarrassed text, difficult to comprehend	Irregular format with wrong facts and figures
Discussion	Well organized, meaningful specification, sound conclusion, logical and concise explanation, highly structured paragraph reference cited	Wordy, unclear conclusion, spurious	Conclusion is not cited, unorganized, difficult to comprehend
References	Complete and correct format, well organized	Beside the point, Incomplete	Wrong format and structuring

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