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How Insurance Literacy and Cognitive Script Richness can influence online insurance purchasing performance behavior

par

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Abstract

The goal of this thesis is to better understand the interaction users would have when shopping online for insurance products. Specifically, it explores how cognitive script richness and insurance literacy can influence online insurance purchasing performance behavior. We posit that the richer the cognitive script was, the lower the task completion time and the higher the successful task completion would be. For insurance literacy, we posit that the higher one's insurance literacy was, the lower the task completion time and the higher the successful task completion would be. A between-subjects design experiment with forty-two (42) participants was conducted. Two conditions of insurance were tested, notably auto and life insurance. Twenty-two (22) participants were assigned to the auto condition and twenty (20) participants were assigned to the life condition. Before starting the insurance subscription task, users were asked about how they would go about conducting the online task. Also, the insurance literacy was measured using a validated scale. Participants' responses were recorded via a transcription which would be considered as their cognitive script. In the insurance task, each user needed to explore the respective websites, corresponding to each condition to try to navigate through each website and to eventually reach a goal to successfully subscribe to insurance. When comparing the notion of cognitive script richness to task completion time, we find that there was complete support for this relationship in that the higher cognitive script richness was, the faster the task completion time would be. The relationship between cognitive script richness and successful task completion was partially supported since a richer cognitive script would yield lower successful task completion rather than a higher successful task completion. With regards to insurance literacy, there was no support between insurance literacy and task completion time. There was also no support between the relationship of insurance literacy and successful task completion.

Keywords:
auto, life, insurance, insurance literacy, cognitive script theory, cognitive script richness, purchase behavior, online shopping, insurance subscription, webpages

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Chapter 1: Introduction

General Context

Modern technology has allowed the lives of humans to become "easier, faster, better and more fun" (*Technology In Our Life Today And How It Has Changed*, n.d.). With the constant developments of new innovations in technology comes the development of more sophisticated online shopping platforms for different products or services. Online shopping has been a growing phenomenon during the COVID-19 pandemic with a 14.2% increase in ecommerce sales and a 14% increase in total online retail sales from 2020 to 2021 (Young, 2022). Moreover, it was shown that in 2022 "76% of U.S. adults shop online" (Barber, 2022) and that U.S adults shop online on a regular basis in that "18% shop online [once a] week" (Barber, 2022) and "57% shop online [once a] month" (Barber, 2022). The act of buying and selling products and services in the context of an online setting is known as e-commerce (*E-commerce*, n.d.). There are various forms of e-commerce that are sold in an online setting including three (3) primary categories: physical goods, digital goods and services (Khurana, 2019). More specifically, the types of products and services including physical items such as "books, gadgets, furniture, and appliances" (Khurana, 2019) digital products like "software, e-books, music, text, images, and video" (Khurana, 2019) and services like "tickets and insurance" (Khurana, 2019). There was one (1) particular service and product of interest that came to our attention to be used in an online setting. The latter relates to the topic of acquiring insurance via an online channel.

With the rise of online shopping channels would come the rise of insurance related products and services that are now offered to be sold in an online setting. A digital transformation is currently underway in the industry of insurance (*Online Insurance Distribution – The Evolution*, 2021). In the last six (6) years, there have been dozens of insurance players in the industry that have started to offer their services online and offered services such as home and auto insurance policies as well as micro policy offerings (*Online Insurance Distribution – The Evolution*, 2021). Traditionally, customers looking to buy insurance plans would need to either go to purchase insurance in person at an institution or acquire insurance by phone (Fontinelle, 2022). Moreover, there has been a major trend in the uptake of "fully digitized direct online [insurance] platform

from Canadian underwriters" (*Online Insurance Distribution – The Evolution*, 2021). Furthermore, due to the digital transformation that the insurance industry is currently going through, what would be imperative for insurance companies to adopt would be to "boost retention and profitability in the digital world" (Shaw, 2021). Additionally, what was also important for users on their success when shopping online for insurance related policies and products would be the overall customer experience they would have when navigating on the website (Shaw, 2021). The way in which humans would interact with technology and thus adopt it, would be via the constant improvement of their customer experience when navigating through multiple online services (Shaw, 2021). The use of technology in an online setting to perform operations, previously was done in person or on phones and this has allowed for the new technology to "drive efficiency, enhance cybersecurity, and expand capabilities across the organization" (Shaw, 2021). The enhancement of the overall online customer experience would allow users to be provided with a more customized service to fulfill the needs of each client (Shaw, 2021).

The navigation in this novel online environment would be aided by users having a better understanding of what customers were getting as part of their insurance plans and policies when navigating for insurance related products by themselves online. A concept that would aid users navigate the complex world of insurance plans and policies by themselves online would be insurance literacy (*The growing demand for insurance education*, 2022). There were many forms of insurance literacy, most notably revolving around the themes of financial, auto, life and personal insurance literacy that were explored in previous literature. Researching into previous insurance literacy resulted in discovering an abundance of articles related to both auto insurance literacy (Palas, 2014; Valentine & Khayum, 2005) and life insurance (Alt et al., 2021; Dragos et al., 2020; Lin et al., 2017; Mare et al., 2019) levels and the user characteristics that would have the greatest influence on a user's general insurance literacy. There was one (1) study previously conducted at the Tech3lab, HEC Montreal's User Experience lab by Sénécal et al (2012) revolving around the theme of purchasing digital products in an online setting (Sénécal et al., 2012). More specifically, there was a study done by Weedige et al. (2019) that tied the themes of personal insurance literacy, financial literacy and general insurance literacy together (Weedige et al., 2019). This latter study

formed the basis in forming the relationships obtained between the variables in our study as well as the post-experience questionnaires for our study.

There was also another topic that was particularly relevant to our study which was keeping track of the various processes that were done when users would navigate through the entire purchasing process of acquiring insurance in an online setting. Cognitive scripts are a type of memory structure evolving over multiple exposure of stimuli and the data contained in these memory structures could then be retrieved and the behavior of users could be observed and could be used as a basis to "guide behavior and solve problems" (Calvete, 2013; Lakshmi-Ratan & Iyer, 1988). These types of scripts outlined the mental structure of "how everyday events [would] unfold" (Arnett, 2007). Moreover, cognitive script theory could also be applied to show the various steps involved in the customer journeys of users when performing certain activities such as paying a visit to the dentist's office for a regular checkup (Whitney, 2001) or dining at a fast-food restaurant (Sénécal et al., 2012). The actions that the users would be taking when going through the performance of the tasks included in the study, would aid in understanding their overall process when they were shopping for insurance online. The order and type of steps taken throughout each user's process would thus be imperative in determining the success of each task involved in the study in question. There was one (1) study previously conducted at the Tech3lab, HEC Montreal's User Experience lab by Sénécal et al (2012) involving measuring the performance of users shopping online for digital products (Sénécal et al., 2012). This study served as a baseline for the development of the research goals and how the task performance during the experiment would be connected to the concepts of both insurance literacy and cognitive script theory.

Research Objectives and Question

Based on what was addressed in the previous section relating to purchasing insurance products, insurance literacy and cognitive scripts, there was one (1) research question that was formulated based on this. The research question was used as a basis for the formulation of the four (4) general hypotheses for our study. Based on the previous research mentioned previously, this has led to the development of the research question below:

Research Question: *"How do users' cognitive scripts and insurance literacy affect users' insurance purchase performance?"*

Contributions to the Thesis

Table 1: Student's contribution and responsibilities in the realization of this thesis

Step in the Process	Contribution
Research Question	Identification of objectives relating to the themes of insurance literacy and cognitive scripts. Defining the research problem. – **60%** * I received advice from my two (2) supervisors on how to tie the various identified constructs together in the form of one (1) complete research question. • Defining research question • Identification of constructs
Literature Review	Research of academic articles – **90%** • Research of insurance literacy articles – **100%** • Research of cognitive script articles. Some articles were provided as good references by my supervisors as a starting point for researching academic articles relating to cognitive scripts – **80%** Writing literature review – **100%** * I received constant feedback from my supervisors on how to modify this section accordingly.

Step in the Process	Contribution
Conception and experimental design	Experimental Design and Procedure – 75**%** • The Tech3lab developed the experimental design and procedure and I modified it as necessary in my thesis according to the suggestions given by my supervisors.
Recruitment	Recruitment of participants for studies – **50%** • The Tech3lab team conducted the entire recruitment process of the participants. The participants were recruited via the SOM research panel. • I recruited the entire sample of graduate students involved in the judgment study evaluating the cognitive script richness of the cognitive scripts of the participants.
Analysis	Conducting the statistical analyses – 80**%** • Hypothesis Analysis Using the concept of Linear Regression. Univariate and Bivariate analysis was conducted. The analysis of experimental data – 50% • Analysis of results performed on the SPSS software • Excel Data Cleaning, Combination and Formatting The analysis of judgment study data – 100% • Data analyzed using the Excel sheet with all the data combined from the experiment as well as the judgment study • Analyzing inter-coder reliability using SPSS The analysis of judgment study data – 100% • Analyzing inter-coder reliability using SPSS

Step in the Process	Contribution
Thesis Writing	Writing my article and thesis – **100%** My two (2) supervisors guided me through the entire process with detailed feedback allowing me to make the appropriate changes to improve the overall quality of my thesis.

Thesis Structure

This thesis is structured in a classic way entailing one (1) empirical study. Firstly, the introduction chapter which the first chapter in this thesis is where the general topics and themes are given a brief introduction. Chapter two (2) contains a literature review covering the topics of both insurance literacy and cognitive script theory. This article spanned two (2) chapters notably chapters three (3) and chapter four (4). Chapter three (3) consisted of the "Theoretical Foundations and Hypotheses" section, and chapter four (4) contained the "Methodology" section. Chapter five (5) had the results and analysis of the experiment that was conducted. Finally, the last chapter, chapter six (6) included the discussion and conclusion section of the thesis.

Chapter 2: Literature Review

Introduction

This literature review consisted of two (2) main sub-sections notably sections 2.1 on insurance literacy and section 2.2 on cognitive script theory. The first sub-section that was addressed in this literature review was the aspect of insurance literacy. More specifically, what the following sub-section relating to insurance literacy first discussed was what literacy was in general, followed by what insurance literacy consisted of. After these two (2) topics were defined, there were seven (7) sub-sections addressing each of the main themes relating to insurance literacy containing relevant academic research articles related to the most prevalent user characteristics that would have an influence on insurance literacy. Moreover, there is a section following the sub-sections of insurance literacy related topics summarizing the main factors influencing overall insurance literacy in users based on the previous sub-sections. Finally, a section relating to research gaps that were not addressed in previous literature followed the analysis.

The second sub-section addressed in this literature review revolved around the topic of cognitive script theory. The first section included in this sub-section consisted of addressing what cognitive scripts were in general and giving a brief overview of how they were defined and used across different use cases in general. What followed was six (6) sub-sections addressing the main use cases and applications relating to cognitive script theory. Moreover, like the literature review section, there was a section which gave a summary of the main use cases of cognitive scripts. The latter section was in relation to the previous sub-sections related to the main applications of cognitive scripts that were found in the research process. Finally like in the first sub-section related to insurance literacy, a section addressing the research gaps pertaining to the topics not addressed in the previous literature followed.

Insurance Literacy

Having an overall understanding and possessing the required knowledge of how to navigate through insurance policies is what makes up general insurance literacy. This knowledge will allow users to make more informed decisions in relation to their personal insurance needs (*What Is*

Insurance Literacy and Why Does It Matter?, 2022). The way in which certain specific groups of consumers would interact with different forms of insurance policies was of utmost importance when trying to better understand what factors made a person have higher insurance literacy. Moreover, insurance literacy is closely tied to the concept of financial literacy and insurance products which are considered to be a type of financial product (*Why is nobody talking about insurance literacy?*, 2022). The contexts where insurance literacy could be applied is varied and of importance to outline the impact that the insurance literacy could have across all different fields of study.

There are many distinctive types of insurance literacy concepts that were discovered throughout the research process on the topic of insurance literacy. Being more specific, the main categories of insurance literacy that were discovered were notably Financial Literacy in insurance, Health Literacy in insurance, Personal Insurance Literacy, Microinsurance Literacy, Auto Insurance Literacy and Life Insurance Literacy as well as other types of literacy that were found in smaller quantities. It is essential to mention these diverse insurance literacy types as they involve a wide variety of user characteristics influencing the overall literacy levels of users throughout the different insurance literacy categories. It was also crucial to analyze these human user characteristics across different insurance literacy categories as there were overlapping patterns with regards to having similar impacts on a user's overall insurance literacy level. Looking at each insurance type was important too as users can come across many insurance types throughout their lives, so they understand each of these insurance types and their policies.

Through the examination of the user characteristics present throughout each category of insurance literacy, there were many overlaps that were observed. These overlapping user characteristics all had some form of impact on the overall level of insurance literacy exhibited by users. However, there were gaps in the literature as there were some user characteristics that were not touched upon by the readings that could have potentially an impact on the overall insurance literacy level of users. Also, it was important to evaluate the different types of insurance categories to identify gaps in the literature and to see what still needed to be explored. Adding to the latter, other human characteristics might possibly affect a user's overall insurance literacy levels. These

were also important in identifying gaps in the literature. What this literature review aims to establish with regards to insurance literacy is how insurance literacy can influence certain user characteristics when shopping for insurance in an online context.

Cognitive Scripts

When performing a task, there are certain behaviors and steps that users would take when going through a range of various activities to ultimately accomplish the task in its entirety. The various steps taken are usually of utmost importance to eventually arrive to an end goal. A cognitive script consists of an expected sequence of behaviors that a person would take when placed into particular situations (Calvete, 2013). The expected behaviors users would take could vary in each situation and from person to person but overall, the activities taken when performing activities was to achieve an end target (Calvete, 2013).

Moreover, the topic of cognitive scripts was analyzed across different areas of application. The areas in which cognitive scripts were analyzed were notably Cognitive Scripts in Education, Cognitive Scripts in Psychology, Cognitive Scripts in Business, Cognitive Scripts in Insurance, Cognitive Scripts in a Shopping Context and Cognitive Scripts in Human Computer Interaction (HCI) and User Experience. Each section contained various studies described in detail that used cognitive scripts in combination with the various themes discovered. Being more specific, the topic of cognitive scripts was defined alongside different subsections each talking about the various areas that cognitive scripts could be used in. Throughout these subsections, what was shown was the different use cases in which cognitive scripts could be employed in and the ways the various studies utilized cognitive script theory to aid in their research processes.

When investigating how cognitive scripts were applied via the different themes encompassing cognitive script theory, there were overlaps of how the theory of cognitive scripts was applied. These overlaps were imperative as they displayed the numerous ways the methodology of cognitive script theory was adapted to the specific theme in question. However, there were some gaps in the literature readings relating to intertwining themes that were not touched upon in conjunction to the research articles that were found relating to the topic of cognitive script theory. It was critical to evaluate the distinct themes surrounding the notion of cognitive scripts for the

identification of gaps in the already existing literature. What this literature review aims to establish with regards to cognitive scripts, is how the richness of cognitive scripts would influence how users would navigate when shopping for insurance in an online context.

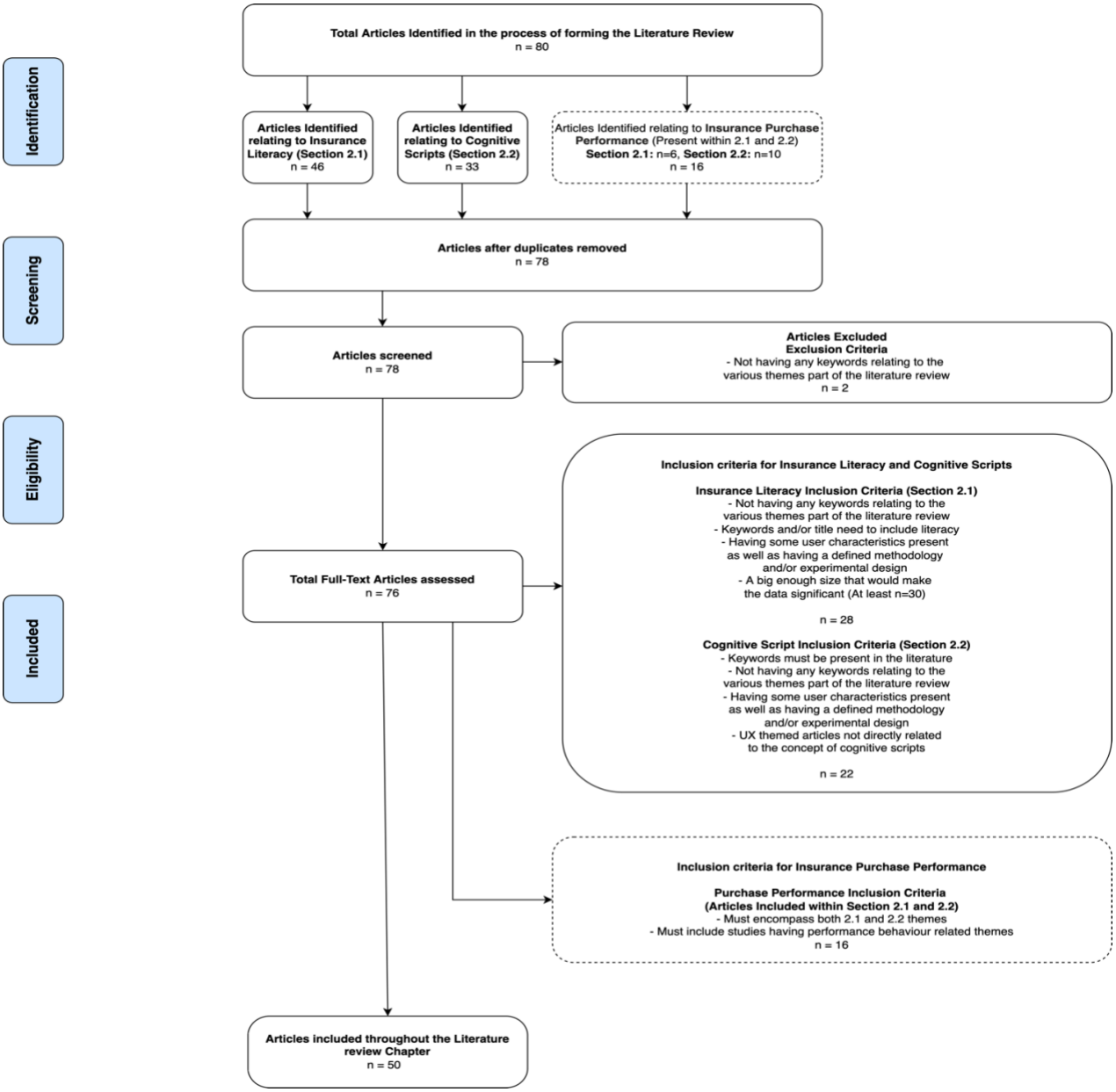
The overall goal of this literature review was to dive deeper into the previous literature to have a better in-depth understanding of how two (2) topics notably insurance literacy and cognitive script theory related to the success of an individual's online purchase performance. The factors of insurance literacy and cognitive scripts were analyzed individually in relation with task performance. Furthermore, what was important to investigate was discovering the impact that an individual's overall insurance literacy had on their performance. What was also another goal of the study was the analysis of cognitive scripts in relation with one's performance on the user submission task. Moreover, there were also mediating variables that would help to better explain the relationship between the variables analyzed in the study.

Literature Review Structure

The type of structure that was chosen for this literature review was a thematic structural approach (Hami, 2020, April 18). A figure illustrating the literature review process is shown on the following page. The reason why this type of structure was chosen was due to the concept of insurance literacy which involved a various array of sub-categories of insurance literacy. Each header in this literature review was split by a type of insurance that was found to be a relevant recurring theme throughout the literature review search process. The search process for articles was conducted using many academic research databases such as Google Scholar (*Google scholar*, n.d.), ResearchGate (*Find and share research*, n.d.) and ScienceDirect (Elsevier) HEC (*ScienceDirect: Database*, n.d.). The keywords that were used were ones containing words such as "automobile", "car", "customer journey", "general", "life", "literacy" and "insurance" for section 1.1, the insurance literacy section of this literature review. In section 1.2 which was the section relating to cognitive script theory, the words used were "cognitive scripts", "UX", "user experience", "website", "business", "marketing" and "online". These words were combined with words such as "and" and "or" to search for results in more than one (1) domain in both sections.

Based on these basic keyword combinations in 1.1, other keywords such as “health”, “financial”, “microinsurance”, “personal”, “risk”, “social”, “information” were found to be relevant recurring themes in insurance literacy in section 1.1. Based on these basic keyword combinations in 1.2, other keywords such as “psychology”, “medical”, “management” and “shopping” were discovered to be relevant to the theme of cognitive scripts. Thus, the various subsections addressing various insurance literacy types were found to be relevant in the domain of insurance literacy. These were addressed in this literature review.

Figure 1: Flow Diagram of the Thematic Literature Review Process



2.1 Defining Insurance Literacy

Literacy

The overall notion of literacy as defined by the UNESCO Institute for Statistics is "the ability to identify, understand, interpret, create, communicate and compute, using printed and written materials associated with varying contexts" (Montoya, 2018). Additionally, according to the UNESCO Institute for Statistics, the definition of what literacy consists of is multifaceted with three (3) main components that are included in this definition. Notably, the three (3) components are "the use of people as a means of communication and expression via a variety of media" (Montoya, 2018),"literacy is practiced in particular contexts for particular purposes" (Montoya, 2018) and "the continuum of learning measured at different proficiency levels" (Montoya, 2018).

Insurance Literacy

More specifically, there exists a specific type of literacy that was of particular interest and was explored in greater detail throughout the review of the literature. This type of literacy has garnered interest in various fields all concerning the general topic of insurance. Moreover, the concept of insurance literacy involves the topic of insurance which is a very complex financial product that consumers purchase in their life (Tennyson, 2011). It is usually purchased to "protect against risks to life, health, and property, liability for damages to others, and old-age" (Tennyson, 2011, p. 166). What insurance literacy involves is the measurement of consumer knowledge, confidence and capability in insurance decision making (Tennyson, 2011).

2.1.1: Financial Literacy

There is an abundance of literature that centered around the topic of financial literacy. It covered many topics relating to specific human characteristics related to financial literacy. Financial literacy is defined to be the "ability to read, analyze, manage, and communicate about the personal financial conditions that affect material well-being" (McCormack et al., 2009, p.223). Moreover, Financial Literacy is particularly useful when making important financial decisions concerning

financial products (Lin et al., 2019). Being more specific at the individual consumer level, Financial Literacy is the relationship that an individual has with their personal assets as well as a "lifelong journey of learning [about how to better manage money]" (Fernando, 2021, September 27, para. 1). Good Financial Literacy would mean that an individual would have the ability to use financial skills such as "personal financial management, budgeting, and investing" (Fernando, 2021, September 27, para. 1). Financial literacy is very important to study as health literacy and financial literacy are related in that "poor health affects finances and lack of financial resources can contribute to poor health" (Kim et al., 2013, p.6).

The primary recurring characteristic that the financial insurance articles addressed as being imperative to having an influence on a user's overall financial literacy was education, more specifically financial education (Lin et al., 2019). Education was a main contributing factor in increasing general financial literacy in populations. There were a few studies that addressed the degree of importance that specialized financial programs had on a user's overall financial literacy level.

A 2019 Japanese financial literacy survey concerning crypto asset owners mentioned that Japanese owners "tend to have higher financial literacy from ... experience of financial education at school" (Fujiki, 2020, p.1). Lusardi's 2008 Working paper concerning financial literacy showed that "financial education programs and policies [that would] foster saving" (Lusardi, 2008, p. 19) and that the "implementation of programs aimed at simplifying saving decisions may prove to be a cost-effective strategy" (Lusardi, 2008, p. 19). Lin et al's 2019 research article conducted a study measuring the financial literacy knowledge of Australian University Students aged 20-32 years studying either Actuarial Sciences or taking a postgraduate Finance Course (Lin et al., 2019). What the study revealed was that "those with actuarial education significantly outperform[ed] those without [it]" (Lin et al., 2019, p. 705) and that specific specialized financial education programs included in a curriculum may be an indicator of higher financial literacy (Lin et al., 2019). Moreover, there was also a Quebecois article relating to Financial Literacy in the Québec Secondary Education Program stating that the "Financial Education program seems to be a response to the global trend of educating citizens on financial issues to hopefully avoid any future economic crisis" (Lefrançois et al., 2017, p.35).

A second user characteristic that was identified was the comparison of gender differences for financial literacy households in the context of household decision making (Fonseca et al., 2012). What this study showed was that men and women had different production processes relating to financial literacy and this could be due to men specializing in making household financial decisions "thereby acquiring more financial knowledge" (Fonseca et al., 2012, p.104) than women who normally specialize in other household functions (Fonseca et al., 2012). There was also a "positive correlation between decision making and financial literacy but only for males" (Fonseca et al., 2012, p.105). Kim et al. 's 2013 study also mentioned that a high level of financial literacy was not present in the United States and women were more susceptible to low levels of financial literacy (Kim et al., 2013). Additionally, the 2011 Consumers' insurance literacy policy brief by Tennyson found that US consumers had low levels of insurance literacy associated with "[low consumer] confidence in insurance decision [making]" (Tennyson, 2011).

A third and final characteristic influencing the overall level of financial literacy was the way in which customers would go about to seek information. Kim et al.'s study showed that people with lower insurance literacy and confidence in their decision making tended to "seek informal sources of insurance information like friends and family" (Kim et al., 2013, p. 5). Tennyson's 2011 published research article also showed that consumers who were described to "prefer [gathering insurance information from] informal sources such as family and friends have significantly lower insurance literacy than others" (Tennyson, 2011, p. 165). Fujiki's study also addressed this user characteristic in that Japanese owners of crypto assets showed that most Japanese owners got their "experience of financial education about money management by parents at home" and this resulted in them having lower financial literacy (Fujiki, 2020).

2.1.2: Health Insurance Literacy

Throughout the review of the literature, there were two (2) similar concepts identified notably Health Literacy and Health Insurance Literacy. Moreover, this literature review addresses both similar concepts as they focus on the healthcare industry and the numerous services in which they provide to the public. However, there are also some distinctions made between the two (2) concepts

of Health Literacy and Health Insurance Literacy (Kim et al., 2013). What distinguishes these two (2) concepts would be the fact that while Health Literacy focused more on an individual's ability to understand health services and information related to decision making, Health Insurance Literacy had a more specific focus on health insurance plans and the specific details of what these plans entailed (Kim et al., 2013). This literature review outlined these notable similarities and differences between the user characteristics predicting overall health and health insurance literacy levels.

Health Literacy

In Kim et al.'s (2013) literature review, Health Literacy is defined to be "… the degree to which individuals have the capacity to obtain, process, and understand basic health information and services necessary to make appropriate health decisions" (Kindig et al., 2004). Health Literacy involves a consumers' ability to generally interpret their health care plan or any health services in general (Kim et al., 2013). It was imperative to find patterns in the overall user characteristics throughout the review of the Health Insurance Literacy literature influencing overall Health Literacy Knowledge of various population types (Edward et al., 2018).

A 2015 journal article relating to both Health Literacy and Health Insurance Literacy discussed the overall most important sources of information that may have had an influence on a user's overall Health literacy knowledge of Americans (Parragh & Okrent, 2015). More specifically, Health Insurance Literacy is low among racial and ethnic minority groups. Hispanic adults had the lowest health insurance literacy while Caucasians had the highest (Parragh & Okrent, 2015). Edward et al.'s 2018 research study addressed what impact that overall Health Literacy and Health Insurance Literacy could have on Hispanic communities in Spanish-speaking populations primarily from Central America and the Caribbean residing in Massachusetts for their access to health care services (Edward et al., 2018). What this study showed was that more than half of the participants in this study had inadequate Health Literacy notably 56% of the participants (Edward et al., 2018). The participants "who had never accessed health care were 93% less likely to be insured and those with adequate HL (Health Literacy) were three (3) times more likely to be insured" (Edward et al., 2018, p. 180).

Due to HL levels being low for the racial and ethnic minority groups which was addressed previously, what Edward et al.'s study suggests going into the future is bringing "education strategies that can be adapted to the ever-changing dynamics of the American healthcare system" (Edward et al., 2018, p. 182). Additionally, policy advocacy efforts are needed to aid "linguistic minority consumers' decision making around accessing health care services in a changing health care market (Edward et al., 2018, p. 182). What resulted from Parragh & Okrent's (2015) research article having a focus on examining if customers understood what they were buying when dealing with both Health and Health Insurance Literacy, was that the individuals' most important source of information for Health Literacy on health topics was from health professionals in the year 2003 (Parragh & Okrent, 2015). Additionally, as technology progresses, people get their information from more modern types of sources such as "news, websites and online searches, [which were the] top sources of health information in 2014" (Parragh & Okrent, 2015, p. 5).

Health Insurance Literacy

According to Kim et al.'s (2013) literature review, Health Insurance literacy is defined as the "knowledge, ability, and confidence to find and evaluate information about health plans, select the best plan for his or her family for their own or their family's financial and health circumstances, and use the plan once enrolled" (Quincy, 2012, p. 6). Health Insurance Literacy differentiates itself from general health literacy in that this topic is more specific to a certain type of literacy inside the health domain which is the domain of insurance (Kim et al., 2013). This type of literacy includes a customer's ability to properly interpret the features of an insurance plan (Kim et al., 2013).

What the results showed from the studies related to Health Insurance Literacy was that in the United States, a high level of health insurance literacy was not prevalent and the most vulnerable groups would be those belonging to racial minorities, people who are less educated as well as women (Kim et al., 2013). Tipirneni et al.'s 2018 research study on the assessment of health insurance literacy and self-reported avoidance of health care services reported that "29.6% [of consumers] reported having delayed or foregone care because of cost" (Tipirneni et al., 2018, p. 1). Thus, having a higher level of health insurance literacy was associated with a lower probability

of foregoing or delaying care due to cost for both preventive and non-preventive care (Tipirneni et al., 2018). Kim et al's 2013 study also showed that confidence in decision making regarding insurance was closely tied to insurance literacy and thus a consequence of consumers possessing low insurance literacy resulting in low confidence for consumers when making health insurance decisions (Kim et al., 2013). Call's 2021 study addressing the topic of health insurance literacy also showed that certain user demographic factors would make these groups of people stand out and have a generally higher level of overall HIL (Health Insurance Literacy) (Call et al., 2021). The specific user characteristics that would give rise to higher health insurance literacy would be Caucasians, highly educated people as well as people who are married (Call et al., 2021). Call's 2021 study also found that the health status measures of a person were significantly associated with having higher overall HIL so people with fewer mental health struggles had a higher overall level of health insurance literacy (Call et al., 2021).

2.1.3: Personal Insurance Literacy

Personal insurance literacy involves a combination of numerous insurance types including protecting against the financial assets of individuals involving "life insurance, total and permanent disability (TPD), income protection (IP), and critical illness covers (trauma cover)" (Weedige et al., 2019, p. 1). Many different insurance firms have different insurance policy plans concerning personal insurance. An example of what is offered by personal insurance policies is mentioned on the RBC website where "offering personal insurance such as car, home, life, health, travel, leisure and creditor insurance, plus retirement investment solutions to Canadians" (*RBC*, n.d.para. 1). Moreover, what the research process came up with was mostly focused on the general aspect of personal insurance and the financial aspect of this type of insurance concerned with the specific domains of life insurance, disability insurance, income protection, illness covers that may surround it.

Moreover, a consumer's ability to read and understand what is described in personal insurance policies, more specifically "product knowledge, trust of providers, awareness of risk mitigation strategies, and behavioral decision-making" is what personal insurance literacy consists of (Driver et al., 2018, p. 53). One Australian study conducted in 2018 focused on the various factors influencing the Australian population's motivation to purchase personal insurance (Driver et al.,

2018). This Australian study consisted of a between-subjects experimental design study where there were two (2) groups chosen to examine personal insurance literacy with thirty (30) financial planners serving as informed personal insurance literacy participants and forty (40) consumer non-informed participants who served to represent the average consumers (Driver et al., 2018). What Weedige et al.'s 2019 study focused on was analyzing both the indirect and direct effects that purchase decisions related to personal insurance had on a consumers' insurance literacy level (Weedige et al., 2019). Weedige et al.'s study was based in Sri Lanka with consumers consisting of government and private sector senior managers, academics, professionals and entrepreneurs (Weedige et al., 2019). This study wanted to aim to close the gap on the impact that insurance illiteracy might have on an "overall inclination [for consumers] to retain and seek insurance" (Weedige et al., 2019, p. 1).

What the two (2) studies mentioned in the last paragraph found was that the average Australian adult consumer aged twenty-five (25) and over mainly had low levels of personal financial literacy (Driver et al., 2018). This could have negative consequences for them being able to purchase appropriate personal insurance products that are particularly suitable for their needs (Driver et al., 2018). In addition to the latter, the negative consequences also included the fact that this group will not be able to provide for themselves in retirement and throughout their life with regards to insurance products as well as possessing a superior reliance on governmental programs like pension and government payouts (Driver et al., 2018). Weedige et al.'s 2019 study mentioned that risks that are not insured could potentially influence overall human development like an accomplishment in education and health (Weedige et al., 2019). The two (2) main factors coming out of Driver's study were "perceptions of value (lack of), and knowledge (lack of)" (Driver et al., 2018, p. 61). What this means is that "Australians do not perceive 'value' in personal insurance products, and as a result choose not to purchase such policies" (Driver et al., 2018, p. 61) as well as "most consumers have poor knowledge about personal insurance products with a particular lack of knowledge (if any) about trauma cover" (Driver et al., 2018, p. 64). In terms of motivations and deterrents, the notions of "trust, life events and behavioral factors appeared to have a role in personal insurance decision-making" (Driver et al., 2018, p.71). Weedige et al.'s study mentioned

that the only way that insurance literacy could be improved was via "[a] more specialized education" (Weedige et al., 2019, p. 1).

2.1.4: Microinsurance Literacy

Shielding the poor against the unforeseen risk is of utmost importance to ensure their financial security in exchange for fixed premium payments. This is what the concept of microinsurance entails (Churchill & Matul, 2006). Being more specific, microinsurance "offers coverage policies health, death, theft, fire, livestock and crops" (Begum & Ensor, 2007; Uddin, 2017). Furthermore, having a greater understanding with regards to literacy of the specific details of what this type of insurance entails is especially important for populations exhibiting lower wealth (Churchill & Matul, 2006).

Microinsurance literacy has ties with financial literacy as these two (2) concepts go hand in hand dealing with the financial stability of the poor (Lusardi & Mitchell, 2007). Lusardi & Mitchell's 2007 working paper addressed how the overall financial literacy of baby boomers can play a role with retirement security measuring the success of how this population plans for retirement and showing that higher financial literacy was associated with better retirement planning (Lusardi & Mitchell, 2007). The overall level of wealth amongst the Hispanic and Black population was very low and this did not change over time between the two (2) different cohorts interviewed in 1992 and in 2004 (Lusardi & Mitchell, 2007) which might be in part "due to low levels of financial literacy among these groups" (Lusardi & Mitchell, 2007, p. 22). Moreover, the results showed that respondents "who report they planned for retirement enter their golden years with higher wealth levels'" (Lusardi & Mitchell, 2007, p. 22) and that "planning is strongly correlated with financial … literacy" (Lusardi & Mitchell, 2007, p. 22)

Another way that microinsurance is used would be in conjunction with different insurance literacy types in the healthcare field. Bonan et al.'s 2017 published a research article in evaluating the effects of an insurance literacy module. It described the benefits and how health microinsurance and three (3) different marketing treatments had on the Senegalese population's uptake on health insurance (Bonan et al., 2017). The study contained three (3) marketing treatments that were in the form of redeemable vouchers which would offer various levels of

reductions in entry costs in MHO (Mutual health Organization), health care organizations and health insurance plans in Senegal (Bonan et al., 2017). The results of this study showed that for poor households learning about insurance literacy in the form of a module "had no significant impact on health insurance take-up, while our marketing treatments have a large and positive significant impact on the households' purchase decisions" (Bonan et al., 2017, p. 187). Thus the poor would need to be informed about the advantages of adopting a health microinsurance policy by being offered a way to better afford it (Bonan et al., 2017).

Microinsurance Literacy is a very important type of literacy that was shown to play an important role for predicting different factors that could influence people's knowledge on it. A research article published in 2017 by Mohammed Ahmar Uddin "[examined] the influence of insurance literacy and demographics on the likelihood of having a micro-insurance policy" (Uddin, 2017, p. 182) from respondents located in the National Capital Region (NCR), in India (Uddin, 2017). This study showed that the most significant factor of microinsurance policy ownership was the insurance literacy score obtained on a Bristow-Tennyson Quiz measuring General Consumer Insurance Literacy (Uddin, 2017). Insurance Literacy, more specifically Microinsurance Literacy, is the most important factor for microinsurance demand (Uddin, 2017). High score participants were about "3.5 times more likely to own a micro-insurance policy" (Uddin, 2017, p. 188). Income also had an overall positive effect on microinsurance uptake. Bonan's Senegal based study described earlier concerning health microinsurance predicted that "what really matters is not education, but rather compensation in the form of reduced fees for membership and the period of observation" (Bonan et al., 2017, p. 189). Uddin's study mentioned that income higher than the national average was "almost 2.4 times more likely to own a microinsurance policy as compared to those having incomes less than the national average income" (Uddin, 2017, p. 188). Education and marital status are also other significant user characteristics in the demand for microinsurance (Uddin, 2017). Thus, the user factors of ethnicity, income, education, and marital status played a huge role as user characteristics that could predict the overall Microinsurance Literacy that a consumer possesses.

2.1.5: Auto Insurance Literacy

Auto insurance policies are widespread over the world and are available in many countries in different forms and have become ubiquitous for vehicle owners (Berry & Ohman, 2021, January 27). More specifically, each country has their own specialized rules and regulations concerning general car insurance requirements that might vary depending on location as well as the types of insurance coverage policies whether it be private or public insurance policies (Berry & Ohman, 2021, January 27). Auto insurance is of utmost importance for vehicle owners as this type of insurance provides owners with a strong sense of security for a various number of vehicles such as car, microbus, bus and trucks (Palas, 2014). The central purpose of auto insurance is for owners of vehicles to have some form of protection for their vehicles against "different types of losses arising out of traffic and road accidents and other liabilities resulting from accidents" (Palas, 2014, p. 34).

With so many different choices involved when choosing an auto insurance plan, this may cause deep confusion for vehicle owners when they are planning to choose an appropriate auto insurance plan. Automobile insurance literacy involves the importance for car owners to understand policies involving "the purchase of automobile insurance, driving attributes, perception of accident risk and vehicle specifications'" (Palas, 2014, p. 31). Automobile insurance notably the Comprehensive Coverage Policy offers a greater coverage to vehicles and contributes significantly to insurance company's revenue as one of the most popular policy choices of vehicle owners (Palas, 2014). Valentine & Khayum's study's quiz demographic was focused on high school students' ability to understand insurance making decisions, whereas Palas's study focused more on what factors users would need to possess in order to be more likely to subscribe to an auto insurance policy among vehicle owners (Palas, 2014).

The studies under the automobile insurance theme contained many different user factors influencing a person's overall insurance literacy. Md. Jahir Uddin Palas's, an Assistant Professor at University of Dhaka research on car insurance in Bangladesh, found that the older the user is in age is a significant characteristic of the overall positive impact on the interaction between insurance literacy on auto insurance uptake (Palas, 2014). This suggested that older drivers make

better decisions when deciding on the type of car insurance they would select that would better fit their personal needs (Palas, 2014). Additionally, what was found from this study was that Palas's hypothesis was proven to be true in that "road safety awareness mediates [or explains] the positive effect of Perception of Accident Risk on Insurance Uptake" (Palas, 2014, p. 40). Valentine & Khayum's 2005 study measuring the overall financial literacy skills of high school students, compared the two (2) high school groups notably the ones living in rural areas and urban areas (Valentine & Khayum, 2005). The results showed that there were significant differences in knowledge between these two (2) groups of students residing in different areas in regards to automobile insurance (Valentine & Khayum, 2005). Rural high school students achieved higher scores on average than their urban counterparts in the area of automobile insurance which could be due to the fact that rural areas had access to less public transport facilities than their urban counterparts (Valentine & Khayum, 2005). Having a car to get to school would be essential for the rural students and thus being informed about auto insurance literacy would be crucial for their main way of transportation (Valentine & Khayum, 2005). Data obtained from this study also showed that other user characteristics influencing overall scores of the financial literacy quiz were positively impacted by factors such as students working a part-time job that was between ten (10) to twenty (20) hours a week, possessing a savings account and who want to pursue their education after graduating from high school (Valentine & Khayum, 2005).

2.1.6: Life Insurance Literacy

Life Insurance Literacy is an important topic of discussion relating to insurance as life insurance can protect the financial assets of someone's loved ones after they pass away and deliver a tax-free payment to tax-free benefit to their beneficiaries (*What is life insurance?*, n.d.). Moreover, the main two (2) purposes of life insurance for consumers is to "[Reduce] the financial risk in the consumer's family income stream [in the] event of premature death of the primary wage earner in the family" (Paul et al., 2021, p. 16) and "[helping customers] to achieve long-term saving objectives, depending on their saving requirements under risk and uncertainty" (Paul et al., 2021, p. 16). Having a general overall understanding of what life insurance usually entails is very

important and goes hand in hand with understanding other forms of literacy such as financial literacy. Having both these skills can influence the overall decision process of the user.

Life insurance literacy is very closely tied to financial literacy in that having high financial literacy can also have a positive impact on one's overall insurance levels (Dunsavage, 2021, April 16). Lin et al's 2017 research article particularly mentioned two (2) concepts of life insurance and financial literacy (Lin et al., 2017) stating that "people with high financial literacy are more likely to purchase life insurance" (Lin et al., 2017, p. 230). Additionally, Alt et al.'s 2021 study showed that if the online presence of an insurer was strong, "[this] would have a positive effect not only for the insurance company but for the entire society increasing the financial literacy of the people" (Alt et al., 2021, p. 670).

The results from the analysis of the studies pertaining to the topic of life insurance literacy showed that there were some recurrent user characteristics that would be a predictor of higher life insurance literacy. The characteristics that showed up most often were being married which showed up three (3) times throughout the life insurance literacy articles and income making an appearance in two (2) articles. There were also other characteristics that showed up less often for life insurance literacy and these were urbanization, a user's individual experience, communication style between professional and customer, age and having children.

The most recurring user characteristic of life insurance was a person's marital status. Lin, C. et al's 2017 study found that married people were more likely to purchase life insurance than their unmarried counterparts (Lin et al., 2017). Additionally, Dragos' study examining life insurance purchases of Romanian customers found that a significant user factor when dealing with life insurance literacy and life insurance purchasing intention was married men (Dragos et al., 2020). Finally, Alt et al.'s study on Digital touchpoints and multichannel segmentation relating to the life insurance industry showed through "personal characteristics (age, marital status and children)" (Alt et al., 2021, p. 652) channel segmentation analysis that marital status was a significant factor influencing a user's overall life insurance literacy (Alt et al., 2021).

The user characteristic appearing twice throughout the reviewed literature was income. More specifically, income was a significant factor in influencing the overall development of the life insurance market in Romania (Mare et al., 2019). Moreover, this study also showed that financial wealth was related to life insurance literacy since Romanian counties had a higher than average salary and demanded more life insurance policies (Mare et al., 2019). Also, investing in expensive financial products was based on the overall wealth level within these counties so as the wealth increased, the more likely this population would invest in life insurance. Another Romanian study further proved the contention that income was an important factor in determining life insurance purchase decision making as the study mentioned that the most likely "level of life insurance purchasing intention" (Dragos et al., 2020, p. 10) were people with high incomes, more specifically "males with high incomes" (Dragos et al., 2020, p. 10).

Other user factors that influenced a user's life insurance literacy included urbanization, a user's individual experience, communication style between professional and customer, age and having children. Mare et al.'s 2019 study mentioned that in addition to income, "urbanization rate positively influences the development of the life insurance market in Romania" (Mare et al., 2019, p. 386). Dragos et al.'s 2020 study mentioned that the "most significant factors [when dealing with life insurance literacy involve a user's] individual experience[s] regarding insurance companies" (Dragos et al., 2020, p. 9). Furthermore, the communication style between professional and customer was very important and also had an impact on a user's understanding of life insurance and life insurance policies (Alt et al., 2021). Being more specific, "personal informal communication [should be promoted alongside] personal professional communication" (Alt et al., 2021, p. 669). Finally, Alt et al.'s study mentioned that age and having children were also significant factors in life insurance development by channel segmentation (Alt et al., 2021).

2.1.7: Other Types of Insurance Literacy

Throughout the analysis of the literature, there were also other types of insurance groups that came up less frequently throughout the search process. These insurance types included Social Insurance Literacy, Risk Literacy, and Information Literacy. Despite these other types of insurance

types not being mentioned as frequently throughout researching the literature, they are nevertheless important as they do exhibit some similarities with other insurance types. Since these categories of insurance literacy types are very novel, not all the academic articles went into specific details or described the specific user characteristics that improved a user's overall insurance literacy. Rather, some of these articles served a purpose for future studies that would be conducted concerning this new area of research. The articles were written in a way that would better serve a purpose for managers and managerial implications rather than actual studies conducted.

Social insurance is a new type of insurance that involves "various types of compensation systems related to work disability due to disease, illness or injury" (Ståhl et al., 2021, p. 1777). More specifically, social insurance literacy refers to "[capturing] the importance of peoples' resources (economic, social or cultural), and the ability of systems to meet the varying needs of claimants, in relation to how the system performs" (Ståhl et al., 2021, p. 1777). Ståhl et al.'s 2021 literature review on social insurance literacy clearly defined the novel concept of social insurance literacy. What the latter literature review addressed was that this "new concept is warranted since it outlines different factors compared to the existing related concepts" (Ståhl et al., 2021, p. 1782). The concept of social insurance literacy is meant to be used to describe the various factors that may influence "different outcomes of peoples' contacts with social insurance systems (e.g., access to benefits, or perceived justice), [and to] offer guidance in how these factors may be operationalized and measured" (Ståhl et al., 2021, p. 1777). Health literacy is related to social insurance literacy as it is conceptualized as an asset outlining the "importance of social determinants of health, and the importance of considering health literacy as not merely an individual trait, but as a result of socio-economic and other social factors" (Ståhl et al., 2021, p. 1780).

The concept of risk literacy is mainly related to insurers needing to set aside a capital buffer to cover losses arising from extreme events that may not necessarily be modeled or even foreseen (Goto, 2012). The concept of risk literacy relates to financial literacy and the concept of risk literacy is mainly related to insurers needing to "set aside a capital buffer to cover losses arising from extreme events that may not necessarily be modeled or even foreseen" (Goto, 2012, p. 14).

For risk managers to further advance their overall risk management processes, the notion of 'risk literacy' should be made more broad and should "include psychological biases against risk that ultimately lead to … judgemental risk" (Goto, 2012, p. 14). Furthermore, Goto's Paper Essay mentions that it is imperative that insurers know how to use financing strategies for tail-events and how to adequately prepare for these events which is also described as what is known to be tail-risk (Goto, 2012, p. 14).

Finally, the last type of literacy that appears to be a relatively new concept that could be explored further in future research is Information Literacy. Generally speaking, Information Literacy is defined as "the ability to identify, find, evaluate, and use information effectively..." (*Information literacy.*, 2017, August 7). There are many different contexts in which Information Literacy could be applied in. One context in which this type of insurance literacy is having is the trust in government websites. A 2020 South Korean study was conducted in order to study the overall effects that Information Literacy could potentially have on trusting government websites (Lee et al., 2020). This study examined the effects that personal human factors such as perceived information overload and perceived information literacy could have on the perception of how useful and trustworthy a government website is (Lee et al., 2020).What this study showed was that the governmental site's overall perceived usefulness was being negatively impacted by information overload as well as higher perceived usefulness increases trust in governmental websites (Lee et al., 2020).

2.1.8: Summary of Known Factors in Insurance Literacy

Table 2. Summary of Known Factors in Insurance Literacy

Dimensions of Insurance Literacy	Construct Characteristics studied in each domain of Insurance Literacy	Directionality
Financial Literacy	Education Level Gender Information Seeking Techniques	**Education level:** Having a higher educational level, more specifically possessing higher financial education has been shown to have a positive correlation with financial decision making in the context of financial literacy. (Fujiki, 2020; Lefrançois et al., 2017; Lin et al., 2019; Lusardi, 2008) **Gender:** Men and women possessed different production processes relating to financial literacy in the context of household decision making such that men generally had better decision-making abilities with household financial functions. (Fonseca et al., 2012; Kim et al., 2013) **Information Seeking Techniques:** People that had significantly lower insurance literacy as well as lower confidence in their decision-making process tended to get their information from informal sources such as their family and friends. (Fujiki, 2020; Kim et al., 2013; Tennyson, 2011)

Dimensions of Insurance Literacy	Construct Characteristics studied in each domain of Insurance Literacy	Directionality
Health Literacy	Ethnicity Education	**Ethnicity:** Hispanic adults had the lowest health literacy levels meanwhile Caucasian adults had the highest health literacy levels. (Edward et al., 2018; Parragh & Okrent, 2015) **Education:** Education would provide new educational strategies that would be adapted to suit the needs of individuals to help to increase their overall health literacy knowledge. (Edward et al., 2018; Parragh & Okrent, 2015)
Health Insurance Literacy	Ethnicity Education Level Gender Confidence in Decision Making Marital Status Mental Health Status	**Ethnicity:** Racial minorities had lower levels of health insurance literacy. Caucasians had the highest level of health insurance literacy. (Kim et al., 2013) **Education Level:** People having completed a lower level of education would generally possess lower insurance literacy. (Kim et al., 2013)

Dimensions of Insurance Literacy	Construct Characteristics studied in each domain of Insurance Literacy	Directionality
Health Insurance Literacy	Ethnicity Education Level Gender Confidence in Decision Making Marital Status Mental Health Status	**Gender:** Women generally had lower health insurance literacy when compared to men. (Kim et al., 2013) **Confidence in Decision Making:** Low confidence in decision making with regards to insurance would result in people possessing low health insurance literacy. (Kim et al., 2013) **Marital Status:** A person's marital status is associated with higher health insurance literacy. (Call et al., 2021) **Mental Health Status:** People that had less mental health struggles had higher overall health insurance literacy. (Call et al., 2021)
Personal Insurance Literacy	Perceptions Education Level	**Perceptions:** Generally, the average Australian consumer had low levels of personal financial literacy because of their lack in the perception of the actual knowledge and value of personal financial insurance products. (Driver et al., 2018)

Dimensions of Insurance Literacy	Construct Characteristics studied in each domain of Insurance Literacy	Directionality
Personal Insurance Literacy	Perceptions Education Level	**Education Level:** Insurance literacy could be improved via an education that is of a more specialized nature. (Weedige et al., 2019)
Microinsurance Literacy	Ethnicity Income Education Marital Status	**Ethnicity:** People belonging to the Hispanic and Black ethnic groups had the lowest reported wealth which was due in part to low levels of financial literacy in these ethnic groups. (Lusardi & Mitchell, 2007) **Income:** People who had incomes that were higher than average were more than twice as likely to be owners of a microinsurance policy compared to their counterparts possessing incomes less than average. (Bonan et al., 2017) **Education:** Education is positively correlated with the overall demand for microinsurance. (Uddin, 2017)

Dimensions of Insurance Literacy	Construct Characteristics studied in each domain of Insurance Literacy	Directionality
Microinsurance Literacy	Ethnicity Income Education Marital Status	**Marital Status:** Marital status is positively correlated with the overall demand for microinsurance. (Uddin, 2017)
Auto Insurance Literacy	Age Area of residence Financial Literacy Employment status Savings Account Planning for Future	**Age:** The older the user is in age, the greater impact this has on automobile insurance literacy. (Palas, 2014) **Area of residence:** The area where people live has an influence on automobile insurance literacy. People residing in rural areas usually have higher automobile insurance literacy as they have less easy access to public transportation compared to their urban counterparts. (Valentine & Khayum, 2005) **Characteristics related to Financial Literacy** **Employment status:** People who were employed displayed higher scores in the financial literacy section on an auto insurance literacy quiz. (Valentine & Khayum, 2005)

Dimensions of Insurance Literacy	Construct Characteristics studied in each domain of Insurance Literacy	Directionality
Auto Insurance Literacy	Age Area of residence Financial Literacy Employment status Savings Account Planning for Future	**Savings Account:** People who possessed a savings account had higher scores on the financial literacy section on an auto insurance literacy quiz. (Valentine & Khayum, 2005) **Planning for Future:** People who were planning on furthering their education after secondary school were shown to display higher scores on the financial literacy section on an auto insurance literacy quiz. (Valentine & Khayum, 2005)
Life Insurance Literacy	Financial Literacy Marital Status Urbanization User's Individual Experience Communication Style Age Children	**Financial Literacy:** People having high financial literacy are more likely to purchase life insurance. (Lin et al., 2017, p. 230) **Marital Status:** Married people were more likely to purchase life insurance that people who were not married. (Dragos et al., 2020; Lin et al., 2017) **Urbanization:** The rate of urbanization has a positive influence on how the life insurance market is developed. (Mare et al., 2019)

Dimensions of Insurance Literacy	Construct Characteristics studied in each domain of Insurance Literacy	Directionality
Life Insurance Literacy	Financial Literacy Marital Status Urbanization User's Individual Experience Communication Style Age Children	**User's Individual Experience:** A user's individual experience relating to life insurance literacy through navigating life insurance policies of different insurance companies was a significant factor that determined if a user had high life insurance literacy. (Mare et al., 2019) **Communication Style:** The way in which customers communicated was very important such as the communication style used between them and a professional working at the company. The two (2) types of communication styles that were emphasized were personal professional communication and personal informal communication. (Alt et al., 2021) **Age:** Age was a significant factor in the development of the channel segmentation of life insurance. (Alt et al., 2021) **Children:** Children were a significant factor in the development of the channel segmentation of life insurance. (Alt et al., 2021)

Dimensions of Insurance Literacy	Construct Characteristics studied in each domain of Insurance Literacy	Directionality
Social Insurance Literacy	Health Literacy	**Health Literacy:** Health Literacy relates to Social Insurance Literacy as it is conceptualized as an asset outlining social determinants of health and treating health literacy as a positive consequence of social and socio-economic factors. (Ståhl et al., 2021)
Risk Literacy	Financial Literacy	**Financial Literacy:** The way in which the concepts of risk literacy and financial literacy are related is in the way that insurers are required to put aside some cash for the coverage of potential losses that may be a negative consequence of unforeseen events. (Goto, 2012)
Information Literacy	Perceived Website Usefulness	**Perceived Website Usefulness:** The perceived usefulness of a government website was shown to be negatively impacted by the concept of information overload. Additionally, an increase in trust in government websites is a direct result of higher perceived usefulness. (Lee et al., 2020)

Research Gaps in the Literature

Through the analysis of the diverse types of academic articles addressing topics concerning insurance literacy, there were various gaps that were noted. Most academic articles addressed user characteristics concerning demographic factors such as education level and type, personal knowledge with insurance, racial groups, age, marital status, and income. Through the different user characteristics outlined above, there was a considerable gap in the literature analyzing specific user characteristics relating to insurance literacy that could potentially better predict a user's behavior when shopping online for insurance. There were some user characteristics that the study addressed which consisted of subscribing and filing a claim online for insurance that was explored in further detail. Notably, these characteristics included a user's overall familiarity with technology, the specific customer journey a consumer would take, the type of technology used to access the website, and the method to gain access to insurance policies.

Firstly, a user's overall familiarity with technology was a characteristic in which none of the relevant studies relating to the topic of insurance literacy explored in much detail. In our current times, more and more services are being put online to allow easier access to users to heaps of information provided. Insurance is a popular product that is becoming more readily available online (*5 Amazing Benefits Of Online Insurance*, n.d.). Thus, this is a relevant factor that will have a big impact on a user's overall knowledge of insurance. More specifically, the familiarity of users with mobile devices as well as desktop web-based interfaces was not examined as part of any studies. Their overall familiarity and previous experience with technology would be an interesting avenue to explore too.

Secondly, the specific path a user takes while exploring for insurance online is very important and should be analyzed. The great majority of the studies based their data on questionnaires, quizzes, surveys, and interviews where the degree of insurance knowledge and literacy participants possessed was gauged. These forms of data collection techniques were used to gauge a participant's overall knowledge of insurance with various types of insurance questions asked to these participants. However, what these techniques failed to measure was the specific customer journey steps participants would take in their search process for insurance online. In surveys, the only type of data that is collected is explicit user data that the user provides. However, the

observation of each step that consumers take is imperative and observing the implicit patterns within the user data from a recording of the user's customer journey is important and can give more specific data about a user's overall insurance literacy.

Thirdly, the type of digital artefact a participant used to browse through the web to find insurance policies is important to analyze as this can have an influence on a user's overall insurance knowledge when searching for an appropriate insurance plan. Phone screens are usually very small compared to desktop computers or tablets. For instance, the new iPhone "lineup ranges in screen size from 5.4 inches to 6.7 inches" (Garrett, 2021, October 6, p. 9) compared to typical computer screens people use which range from "22 [to] 24 [inch] screens" (Carl, 2020, October 5, p. para. 3). Desktop screens usually have a bigger surface area allowing users to see more information at once. Examining the effect that this limitation based on the different user experience users would have either on the web browser or on the mobile phone, could influence how well people can apply their insurance literacy knowledge when searching for insurance online. It can also have an impact on the way people can learn about insurance when they are searching online for it.

Finally, the fourth and final characteristic that the articles mentioned was the best method that people would gather their information about insurance from. The methods would include either gathering insurance information from online sources, traditional books, or pamphlets, speaking to experts or friends and family. Alt et al.'s study revolved around digital touchpoints, multichannel segmentation in relation to the life insurance industry. The latter study found that the best source of information in which participants got their information from would increase life insurance literacy (Alt et al., 2021). However, they only used the survey based approach to measure what types of mediums users preferred to get their life insurance information from (Alt et al., 2021). This process should be further expanded and done in conjunction with measuring a user's customer journey while gathering information about insurance. The way this would work would be by asking a user to do a certain insurance related tasks using the web to search for it, using pamphlets, brochures, or books, or calling an expert, friend, or family member. The entire customer journey of the participants would be recorded such as the user's online search process would be considered. It would be tracked using screen recording software, phone calls and users reading pamphlets

would also be recorded. The "thinking aloud" principle should be also employed while performing these tasks (Nielsen, 2012, January 15, p. para. 1).

2.2 Defining Cognitive Scripts and their Applications

Cognitive Scripts

The overall notion of cognitive script theory was defined in Dargent et al.'s 2019 research which showed that users developed cognitive shortcuts by following cognitive scripts, which are "a structured representation describing a stereotyped sequence of events in a particular context" (Dargent et al., 2019; Schank & Abelson, 1975). Basically, cognitive scripts involve the typical steps that people usually take when being put in certain situations and these follow a certain predefined structure in various situations. Cognitive Scripts could be used in various contexts in one's daily life. A general example of how cognitive scripts are used is explained in Sénécal et al.'s (2012) academic research article in the context of customers ordering food in a fast-food restaurant (Sénécal et al., 2012). The way in which this would be applied would be by a customer activating their personal fast food restaurant script which is composed of the different steps that consumers would take when they go to these restaurants which includes steps like the customer "placing [their] order, waiting, receiving the order, eating, paying, etc..." (Sénécal et al., 2012, p. 2). Similarly, these concepts of scripts could be applied to our study with the purpose of collecting and analyzing the cognitive scripts and the different steps participants would be compiling to shop for the different types of insurance online.

Moreover, what was of particular interest when doing research on cognitive scripts was searching for academic articles relating to our study on cognitive scripts with human computer interactions on websites in a context where someone was shopping for insurance online. Throughout the search process, there were two (2) articles that stood out as they were very similar to what our study at the Tech3lab entailed as they were previously conducted by researchers at the same lab. Sénécal et al.'s 2012 Research-In-Progress academic paper focused on the investigation of the cognitive scripts of customers in an online setting which is something that has never been explored before in academia. The research delineated the cognitive scripts that were formed and activated by consumers when they are in an online setting (Sénécal et al., 2012). More specifically,

"the objectives of this research-in-progress are to verify and validate the way consumers activate cognitive scripts when shopping online, [understanding] how cognitive scripts are formed by consumers over multiple online shopping trips, and [investigating] how consumers activating different cognitive scripts respond when facing a novel shopping environment" (Sénécal et al., 2012, p. 1). The second study that was particularly relevant to our research was a study conducted by Dargent et al. in 2019 which involved a new web interface design and the effects that certain tasks would have on the overall user experience of participants navigating in the novel interface (Dargent et al., 2019). This study explored different themes such as user experience, website design, cognitive load, and human computer interaction (HCI). The purpose of this study was to conduct research on the user experience of customers visiting a service providers' website (Dargent et al., 2019). More specifically, this study measured the user characteristics such as a user's "emotional and cognitive states when [they were] presented with a [huge] redesign of a service provider's website" (Dargent et al., 2019, p. 1).

2.2.1: Cognitive Scripts in Education

Technology has become ubiquitous in various aspects of our daily life. Moreover, the combination of education and technology has become an ever-growing importance in the field of education. Educational Technology is thus becoming a new reality for both educators and students alike especially during the pandemic. According to a 2021 CNBC article on the topic of the rise of online learning during the COVID-19 pandemic, there has been a huge growth in technology use in educational institutions throughout the world for both students and teachers equally (Hess, 2021, March 29). Being more specific, Zach Sims, CEO, and co-founder of Codecademy has stated that "the biggest areas of growth you saw were in K-12 and higher education, where people that have traditionally been teaching in classrooms, all of them had to use new technology tools and move online in order to survive a pandemic. Those sectors grew demonstrably." (Hess, 2021, March 29, para. 3). However, online education could also come about with certain hardships as some classes are taught better online while others would be taught better in person (Hess, 2021, March 29). Additionally, educational programs in the workplace for employee skill training have

also been proven to be somewhat problematic as workplace educational training programs needed to be adapted in an appropriate remote format where employees could learn easily (Snow, 2021, March 7). Concerns have risen as various "businesses are starting to worry about the longer-term missed opportunity of L&D [learning and development] and training programs" (Snow, 2021, March 7) if they were not adapted to a remote format as well.

There are many applications of the use of education in relation to technology. Moreover, throughout the research process, there were two (2) very interesting applications that used cognitive scripts in their methodology. Notably, the two (2) applications consisted of the use of technology in the workplace via educational resources and the use of students via the educational undergraduate medical school program. The way in which this was employed in the study with the workplace educational resources was that the study conducted by Murillo Montes de Oca and Nistor analyzed the cognitive scripts of the participants in relation to the acceptance of complex educational technologies, a vCoP or a virtual community of practice online system, in the workplace (De Oca & Nistor, 2014). The study relating to helping undergraduate medical students studying to become medical doctors employed the use of an "illness script" as well as virtual patients with authentic clinical video and audio in order to simulate a more immersive learning experience for the medical students (Hayward et al., 2016).

The focus of the first study relating to education in the workplace was employing the "use of a virtual community of practice (vCoP) where participants shared their knowledge about the technical use of a software used in daily work tasks" (De Oca & Nistor, 2014, p. 333) and when needing help in their work tasks with the alternative to contacting a Help Desk (De Oca & Nistor, 2014). This academic research journal presented a learning scripts approach where the different steps each user took while searching for help-seeking strategies to their problems were outlined using either the physical helpdesk or the virtual vCoP software solution to fill the gap in their knowledge about certain work related matters (De Oca & Nistor, 2014). The results indicated that users had two (2) cognitive scripts: notably an acceptance script for the formation of the intention of the use of the software and a help-seeking script which leads users in the direction for help at a help desk rather than the software used in situations when they need assistance (De Oca & Nistor, 2014). In addition, further results indicated that participants developed the intention to use vCoP

but this intention has a limited effect on its actual behavior (De Oca & Nistor, 2014). So "the final outcome is that users declare an intention to use the system, but when they have to take the decision whether to use it or not, in the face of help which is required, users do not follow through their intention, and instead turn to the Help Desk" (De Oca & Nistor, 2014, p. 337).

The second use case of cognitive scripts in education related to medical school education more specifically was the application of script theory in relation to aspects such as medical education for undergraduate medical students learning how to analyze an illness script (Hayward et al., 2016). The illness script involved testing different hypotheses alongside retrieving new information in order to eventually reach a diagnosis for the client(s) (Hayward et al., 2016). A state-of-the-art virtual client was developed with the use of authentic clinical video and audio containing 3D imagery of the body which was interactive as well as the simulation of electronic medical records (Hayward et al., 2016). The feedback received from these undergraduate medical students was very positive in that the new technology employed the intent of their learning which resulted in an experience that was "novel, innovative, clinically authentic, and a valuable learning experience" (Hayward et al., 2016, p. 1). This was a successful implementation of a new way of teaching students that could be applied in the near future (Hayward et al., 2016).

2.2.2: Cognitive Scripts in Psychology

Psychology is a branch of science that deals with the study of both the mind and behavior (Mcleod, n.d.). Post-cognitive psychology is a new modern type of psychology that is a successor of cognitivism implementing what the concept of cognitivism lacked. This conceptualization of practices was summarized in a manner "that recognizes their action orientation and co-construction, and to appreciate how they are given sense through people's categories, formulations and orientations" (Potter, 2000, p. 21). More specifically, there was another area of psychology that was of interest in the use cases presented in the academic literature that was found through the examination of people's behaviors. This branch of psychology is called Discursive psychology which involves the study of psychological issues from a participant's perspective" (Te Molder, 2015, p. 1) and investigates "how people practically manage psychological themes and concepts

such as emotion, intent, or agency within talk and text" (Te Molder, 2015, p. 1). There were two (2) notable ways in which the concept of psychology was used with cognitive scripts notably via the analysis of scripts of autistic individuals and the examination of healthcare professional scripts in a medical setting. This was shown to improve and provide better services for clients and to use healthcare materials more efficiently.

The first place where cognitive scripts were used to aid in psychology research would be in relation to analyzing the differences between the cognitive scripts of individuals with autism versus individuals without the condition. As described before, interactions between people are important in cognitive script analysis as people usually rely on cognitive scripts for the structure of social interaction. Volden & Johnston's 1999 study showed that the behaviors of individuals with three (3) different tasks were created with the purpose of determining the cognitive social scripts that each group possessed (Volden & Johnston, 1999). The results of the study indicated that individuals with autism produced a unique script for their everyday actions when compared to their counterparts without autism (Volden & Johnston, 1999). The scripts also revealed that the autistic population also had significant communication problems that were persistent "even in the face of relatively intact social knowledge" (Volden & Johnston, 1999, p. p.210).

The second use case dealt with combining script theory into the development of various medical materials in which health professionals could employ in various healthcare settings (St. Amant, 2021). In this context, script theory could be used to examine what the wants and desires of clients would be to better tailor services for their medical needs (St. Amant, 2021). St. Amant's study was conducted by asking health professionals guiding questions about the different activities they performed in a medical setting in order to get an optimal idea of the mental processes they would take (St. Amant, 2021). The results indicated that the healthcare environment was a complex environment to navigate and employing the concepts of cognitive scripts and psychology could aid in the development of better medical materials (St. Amant, 2021). Additionally, the information retrieved from these scripts had a positive contribution on the overall advancement in healthcare materials that could help the professionals in healthcare perform their overall work more efficiently (St. Amant, 2021).

2.2.3: Cognitive Scripts in Business

2.2.3.1: Cognitive Scripts in Management & Marketing

Cognitive scripts play an enormous role in both the fields of management and marketing. Throughout the research process, there were many articles found that were related to the concepts of management and marketing. The most notable ones included three (3) articles across these two (2) subjects. These articles spanned themes such as hotel service management, customer-to-customer marketing, and industrial purchase behavior. Additional details on these articles are described in the paragraphs that follow.

Management, more specifically hotel management, was a particular use case for the employment of cognitive scripts in management. The way this was done was data collection via interviews to compile the necessary steps that users would take in the cognitive process of the users (Järvi et al., 2020). More specifically, there were three (3) stages to the interview process as there were different groups that were targeted to be interviewed (Järvi et al., 2020). The first stage consisted of five (5) interviews with senior directors and seven (7) interviews with front-line employees in order to collect data from the hotel's employees (Järvi et al., 2020). The second stage followed and in this stage, fifteen (15) customer diaries were collected in order to collect customer data about their experience staying at the hotel (Järvi et al., 2020). Finally, the third and final stage involved the collection of customer opinions about the hotel via 344 online reviews on the trip advisor website (Järvi et al., 2020). Managerial implications were suggested in that managers should seek opportunities for shaping "potentially misaligned customer-and provider-side expectations" (Järvi et al., 2020, p. 10) before managers and clients values co-destructed which is important as co-destruction is hard to detect early and only becomes visible after occurring (Järvi et al., 2020).

Marketing concepts came up in the research process in two (2) different academic articles. The first study had to do with interactions between customers in a customer-to-customer manner among strangers who were present at a garden center (Parker & Ward, 2000). Another use case had to do with "analyzing industrial [purchase behavior]" (Leigh & Rethans, 1984, p. 23) data related to

activity data originating from purchases made using a computer terminal system (Leigh & Rethans, 1984). In the first study relating to customer-to-customer interactions, the aim was to focus on the interactions between customers to measure the frequency of interactions between these people (Parker & Ward, 2000). The cognitive scripts of the customers were collected via interviews and semi-structured interviews showed that there was a high degree of interactions between customers resulting in a key part of a positive customer's experience (Leigh & Rethans, 1984). In the second use case, what was primarily of interest was the application of cognitive theory to the scripts of industrial buyers for "the overall new buy purchase process, an initial sales call, a follow-up negotiation meeting, and a modified rebuy situation" (Leigh & Rethans, 1984, p. 22). The results relating to industrial marketing showed that the industrial buyers were "very willing and able to provide detailed and sequentially organized scripts for an overall purchase process and several subprocesses" (Leigh & Rethans, 1984, pp. 27-28) and the script norms were very revealing in relation to the "structure of industrial purchasing processes" (Leigh & Rethans, 1984, p. 28). Overall, what was derived from this study was the presence of cognitive scripts in the domain of purchasing and industrial marketing which provided important information for managers (Leigh & Rethans, 1984).

2.2.3.2: Cognitive Scripts in Organizational Settings

Another area of application in business was cognitive scripts in organizational settings. Gioia and Poole's academic article has defined the concept of a script in relation to organizational behavior as a framework for understanding the cognitive dynamics underlying many organizational behaviors and actions (Gioia & Poole, 1984). Another article by Lord et al. expands on this concept and goes into more details about the usefulness of scripts in an organizational setting (Lord & Kernan, 1987).

In the first study by Lord et al., the role of cognitive scripts takes in the generation of meaningful behaviors in diverse organizations was investigated (Lord & Kernan, 1987). Moreover, there were three (3) areas of research that were analyzed in this study notably Scheme Theory, Control Theory and Goal Setting (Lord & Kernan, 1987). What the results of this study indicated was that these overarching themes in cognitive scripts were all confirmed to have purposeful behavior in business

organizations (Lord & Kernan, 1987, p. 265). Additionally, the other study done by Gioia and Poole presented a concept involving the development of scripts in relation with social cognition and the application of such notions like organizational behavior (Gioia & Poole, 1984). The results from this study provided a "framework for understanding how people understand and perform their own behaviors and actions within [an] organization" (Gioia & Poole, 1984, p. 458) with the employment of cognitive scripts (Gioia & Poole, 1984). This study mentioned four (4) observations indicating that there were some concerns with the adaptation of scripts with understanding the behavior of the structure and the study of ongoing behavior (Gioia & Poole, 1984). A second observation mentioned that "a widening of the domain of script-based cognition and behavior" (Gioia & Poole, 1984, p. 458) was needed in order to account for "[recognizing] to a greater degree of conscious or controlled processing involved in scripted activities" (Gioia & Poole, 1984). A third observation indicated that the "depiction of organization as ... a set of scripted situations" (Gioia & Poole, 1984, p. 458) offered an alternative perspective to "organizational behavior phenomena" (Gioia & Poole, 1984, p. 458). The final observation was that the proposal to implement cognitive scripts in business organizations would ultimately "guide initial investigations into scripted behavior in organizations" (Gioia & Poole, 1984, p. 458).

2.2.3.3: Cognitive Scripts in Entrepreneurship

According to Ownr.co, entrepreneurship involves the "act of starting a business with the intention of turning a profit" (*What is entrepreneurship? How to become an entrepreneur: Ownr.*, 2021, October 3). Adding to this general definition, entrepreneurship also incorporates the opportunity for self-motivating individuals willing to start their own business by the creation of their own income and career path and to work "for themselves to develop goods or services that people want or need" (*What is entrepreneurship? How to become an entrepreneur: Ownr.*, 2021, October 12, p. para. 4). Cognitive scripts could be incorporated alongside the concept for the determination of entrepreneurial success. This was a useful application that displayed the extent to which cognitive scripts could be used as a measure of success. The first use case involved analyzing the cognitive scripts of entrepreneurs who were successful in their business ventures

versus those who were not. Moreover, the second use case was presented in a thesis format and related to digital entrepreneurship.

The examination of the cognitive abilities of successful entrepreneurs compared with the scripts of less successful entrepreneurs were analyzed (Sánchez García, 2014). This was done to increase the overall understanding of the various factors determining the overall success of entrepreneurs (Sánchez García, 2014). Entrepreneurs possessing high expertise as displayed in the cognitive scripts showed higher levels of perceived success than their entrepreneur counterparts having lower levels of expertise (Sánchez García, 2014). Venture growth in relation to firm growth is defined to be "a foundational topic of management research, and is defined as the increase in a firm's performance or size over time" (Nason & Wiklund, 2018; Sarma & Marszalek, 2020). Additionally, Sánchez García's study mentioned that "there were no differences in venture growth" (Sánchez García, 2014, p. 321). Furthermore, the results confirmed that entrepreneurs with higher script expertise showed greater levels of perceived success compared to the entrepreneurs with lower levels of expertise (Sánchez García, 2014, p. 321).

The use case relating to Nouskali's master thesis analyzed the cognition of entrepreneurs to see their thought process when they were in the process of scanning digital entrepreneurship (NOUSKALI, 2019). The factors that were analyzed via cognitive scripts in this study included factors such as the "motivation, knowledge and creativity [effect]" (NOUSKALI, 2019, p. 2) on the overall phenomena on how entrepreneurs utilize their digital entrepreneurial skills (NOUSKALI, 2019). The outcome of this study proved that the vast majority of entrepreneurs use the internet on a daily basis and displayed "frequent interactions" (NOUSKALI, 2019, p. 34) with various websites related to trying to find novel business ideas (NOUSKALI, 2019). In addition, entrepreneurs also mentioned that they usually were more prone to think outside of the box and "[made] novel connections and [perceived] new or emergent relationships between various information and often [found] differences between the way they [saw] certain situations and the way people [saw] them" (NOUSKALI, 2019, p. 53).

2.2.4: Cognitive Scripts in Insurance

Through searching for articles relating to both cognitive scripts and insurance, there were not many academic research studies previously done that related to both these subjects. Two (2) academic articles addressed in different ways how the application of insurance related to script theory. Bruce Alford's 1998 published academic journal article dealt with both these subjects in a similar kind of way to the one concerned with our study. The second academic article, Ainscough 1996, had ties with the theme of business and service marketing as well as insurance in the context of script theory utilization. The way this study had its ties with insurance was the analysis on how the product domain of insurance would behave with the application of a computer based expert system (Ainscough, 1996).

Firstly, the study conducted by Alford analyzed the sequence of activities that users took when visiting a professional service notably visiting the dentist (Alford, 1998). The goal of the study was an attempt for the testing of the adequacy for the employment of scripts in the process of the examination of professional service delivery and the cognitive script in accordance with the various service judgements made by the participants (Alford, 1998). In the situation where the participant visited the dentist, the dentist offered the six (6) participants in the focus group dental health insurance (Alford, 1998). Through the analysis of the cognitive scripts of the focus subjects, the results indicated that it was beneficial for a dentist to offer clients dental insurance (Alford, 1998). However, this study differed from our data collection since cognitive scripts from the study concerning professional services were conducted in a situation where consumers were physically visiting the dentist rather than performing tasks in an online setting (Alford, 1998).

Secondly, an additional application of cognitive scripts in insurance was the analysis of life insurance in the professional sales domain and the use of computerized expert systems. There were forty (40) expert sales agents recruited working in four (4) different sales regions corresponding to insurance companies (Ainscough, 1996). Computerized expert systems are systems used in a variety of contexts for the application of "reasoning methodologies on knowledge in a specific domain in order to render advice or recommendations, much like a human expert" (Ainscough,

1996, p. 23). These systems are highly performant as they can "sort through a vast amount of data and find the best solution in a fraction of the time a human would require" (Ainscough, 1996, p. 23). Moreover, the point of the study was the practical use of selling scripts that were collected from sales agents working at insurance firms to determine how a sound expert system could be created from the collected script data (Ainscough, 1996). The results indicated that life insurance is a suitable product domain for an expert system as selling life insurance "requires processing customer information quickly and using questions intelligently to probe customer characteristics" (Ainscough, 1996, p. 28). Additionally, the life insurance industry brought in lots of profit where the participants worked as the average annual sales was very high in this industry (Ainscough, 1996). According to Limra.com, life insurance sales "increased 8% [in the first 6 months of 2021]" and this was "the highest policy sales growth recorded since 1983" (*LIMRA: First Half of 2021 Had Highest U.S. Life Insurance Policy Sales Growth Since 1983*, 2021, September 1).

2.2.5: Cognitive Scripts in a Shopping Context

Shopping at one's local grocery store, department store and online is vital to one being able to sustain themselves in their everyday life. Additionally, shopping could be a good way to relieve stress or as a hobby for some people hence where the term retail therapy comes into play (Novacov, 2019, October 16). There was an abundance of information available when dealing with the cognitive scripts of users involved in the shopping process. Shopping Scripts are types of scripts that are examined throughout many different types of shopping processes in order to see script variability between participants while shopping (Stoltman et al., 1989).

Shopping script analysis relied on the concept of consumer research and the variability of their behaviors when going shopping either at a brick-and-mortar stores or online (Stoltman et al., 1989). Shopping scripts in literature mostly focused on in-person analysis of themes such as customers shopping at supermarkets or shopping at department stores. The roles and actions that salespersons played in convincing a customer to buy product(s) were analyzed. Analyzing the cognitive shopping scripts of consumers played a useful role in understanding the journey customers took when shopping for insurance online. Thus, shopping scripts could be used in conjunction with cognitive scripts in applications where users would shop at physical stores,

salespersons interacting with customers and the actions of them visiting websites to do online shopping. A more detailed description of each category is given in the following paragraphs.

There was an assortment of use cases in academia relating shopping with the concept of cognitive scripts thus forming the notion of shopping scripts. The first use case related to a study examining the characteristics of shopping scripts of user participants going out into the real-world in brick-and-mortar stores such as grocery stores and department stores (Stoltman et al., 1989). The variability of scripts in a shopping context was shown by the examination of the unique and common actions that each user took when they were shopping (Stoltman et al., 1989). When comparing both department store cognitive scripts to the cognitive scripts of grocery stores, it was observed that there were several actions such as comparing prices and going to a cash to pay cashiers that were classified as common shopping activities between scripts (Stoltman et al., 1989). However, some actions were more likely to be categorized with department store shopping rather than grocery store shopping and vice versa (Stoltman et al., 1989).

The second use case examined the effectiveness of the interaction of salespersons with their customers while they were shopping (Leong et al., 1989). The results indicated that salespersons who were highly effective in their communication with various customers produced “more elaborate, distinctive, contingent, and hypothetical scripts” (Leong et al., 1989, p. 164). These results were emphasized in situations that were less typical in the world of sales “in the homeowner's insurance but not the life insurance experiment” (Leong et al., 1989, p. 164). Additionally, there were important managerial implications that could be useful to managers as cognitive scripts were good applications for sales training programs as there was a focus on sales behaviors besides the focus being put on personality traits or attitudes (Leong et al., 1989).

The third and final use case involved the examination of the roles that female consumers took through cognitive scripts while adopting online shopping as a method when shopping for apparel. The results regarding consumers' adaptation of internet use for shopping indicated that consumers preferred some steps when shopping in person as “touching and scrunching textiles [and] trying on the items before deciding to buy them” (Jacobs & De Klerk, 2010, p. 255). In general, the

results indicated that certain purchasing behaviors in different contexts played a huge role in the consideration of whether users would adopt shopping on the internet or not (Jacobs & De Klerk, 2010).

2.2.6: Cognitive Scripts in HCI & UX

In the modern world, most business activities for professional services are conducted online. This has been accentuated in most part by the pandemic and this has been a very important factor for the increase of e-commerce activity by many companies (*Impact of Covid Pandemic on ECommerce*, n.d.). More specifically, there was an increase of 4.4% of the total share of global retail sales in the United States in e-commerce between the years 2019 and 2020 from 13.6% in 2019 to 18% in 2020 which was a sharp increase compared to the years 2018 and 2019 where in that time period, the total share of global e-commerce retail sales only went up by 1.4% (*Impact of Covid Pandemic on ECommerce*, n.d.). Moreover, the same article also mentioned that the restrictions imposed by the COVID-19 pandemic have essentially "forced a global business paradigm shift towards the digital economy, which has negatively impacted traditional business models while also creating opportunity through sales diversification online" (*Impact of Covid Pandemic on ECommerce*, n.d.para. 7).

This leads us to the importance of the concept of User Experience (Veilleux et al., 2020) and Human Computer Interaction (HCI) of these websites as more and more e-commerce activity was conducted. HCI has become important in conjunction with the visual aspects of a user-interface website design and there were numerous studies that used these two (2) concepts in conjunction related to cognitive script theory. Throughout the search process of cognitive script theory, the concepts of HCI, UX, interaction design in relation to information systems and website design were all mentioned in previous literature. This is especially important for our study as these concepts were applied throughout the process of our data collection where cognitive scripts were employed as well.

Sénécal et al.'s study concerning a consumer's online cognitive script touched upon the notion of better understanding of how cognitive scripts of customers were formed when shopping online. It investigated the different user cognitive scripts generated when they would respond to new

shopping environments (Sénécal et al., 2012). The study's experimental design was structured in two (2) ways with two (2) groups of participants such that there was an intrascript condition which involved users visiting one (1) website multiple times and an interscript condition which involved only one (1) visit to many websites. A total of twelve (12) music websites were chosen for the experiment (Sénécal et al., 2012). Being more specific, the theme of the analysis was users performing trips to purchase digital music online (Sénécal et al., 2012). The data from the participants was collected via a preliminary questionnaire asking the participants to explain the steps they took from arriving on the website to purchasing a song online in the digital form, and downloading it (Sénécal et al., 2012). After the questionnaire was done, participants from both groups were asked to actually complete the task where they were exposed to the same website (Sénécal et al., 2012). A final questionnaire was delivered to assess their overall website evaluation and online cognitive script evaluation (Sénécal et al., 2012). Additionally, EEG data was collected as the participants conducted the experiment at HEC Montreal's Tech3lab to "precisely assess the cognitive workload in the script formation phase and the final script activation within and between groups, and ... to compare neurophysiological measures with self-reported measures" (Sénécal et al., 2012, p. 6).

The results of the experiment suggested that when users would visit a novel website, those that were part of the interscript condition would perceive it as easier to use than their intrascript counterparts (Sénécal et al., 2012). Moreover, when in the "script formation phase" (Sénécal et al., 2012, p. 6) the overall cognitive workload of the participants in the intrascript condition "will reduce to a larger extent than the cognitive workload of interscript consumers" (Sénécal et al., 2012, p. 4). Finally, when users visits a novel website, the intrascript consumers' workload would have been increased much more "than the cognitive engagement of interscript consumers" (Sénécal et al., 2012, p. 4).

Furthermore, Dargent et al's study had a goal to outline the user experience of users who evaluated the overall experience when visiting a website after a major redesign (Dargent et al., 2019). What was measured were the cognitive and emotional states of the user when exploring the website with new designs and measures such as "cognitive load, emotional valence, and emotional

arousal" (Dargent et al., 2019, p. 1). A within-subject experimental design was conducted with two (2) tasks being transactional (performing a transaction) and informational (searching for information) on four (4) simultaneous visits on the website (Dargent et al., 2019). The way data was collected was using specialized tools to measure the three (3) dependent variables of emotional valence, emotional arousal, and cognitive load (Dargent et al., 2019). The tools used were facial and emotion recognition for emotional valence, electrodermal activity (EDA) for emotional arousal, and pupillometry respectively for cognitive load (Dargent et al., 2019). The final results showed that the hypothesis "repeat visits to a new interface [reduces] cognitive load" (Dargent et al., 2019, p. 2) was supported along with the concept that the task type moderated the relation between task repetition and cognitive load on the new interface. The repeated visits had less of an impact on "reducing cognitive workload with an informational task than with a transactional task" (Dargent et al., 2019, p. 2). The task type moderated the relation between task repetition and emotional valence on the new interface and overall increases in valence were greatest in the initial visits on the website for "an informational task than for a transactional task" (Dargent et al., 2019, p. 2).

2.2.7: Summary of Known Factors in Cognitive Scripts

Table 3. Summary of Known Factors in Cognitive Scripts

Dimensions of Cognitive Scripts	Construct Characteristics studied in each domain of Cognitive Scripts	Directionality
Education	Technology Medical Field	**Technology:** Using a vCoP system which is also known as a virtual community of practice online system in the workplace in conjunction with cognitive scripts in relation to the acceptance of complex educational technology. Results showed that users had two (2) cognitive scripts notably a help-seeking script which would lead users to search for help at a help desk and an acceptance script for the intention to use the new technology software. (De Oca & Nistor, 2014) **Medical Field:** The use of an illness script and virtual patients were employed to simulate a more immersive learning experience for undergraduate medical students in the medical field. Results displayed that those students were satisfied with the use of this technology in conjunction with their overall learning experience. (Hayward et al., 2016)

Dimensions of Cognitive Scripts	Construct Characteristics studied in each domain of Cognitive Scripts	Directionality
Psychology	Neurological Developmental Disorders Medical Materials in Healthcare Settings	**Neurological Developmental Disorders:** The analysis of the cognitive scripts of people who had autism versus people who did not have that condition showed some important research insights. Individuals with autism provided a distinctive unique script when describing their everyday actions as compared to their counterparts without the condition. The scripts of individuals with autism also displayed that these individuals possessed significant communication problems. (Volden & Johnston, 1999) **Medical Materials in Healthcare Settings:** The development of various medical materials was aided with cognitive script theory and psychology. The healthcare environment is a complex type of environment to navigate and the information retrieved from the scripts had a positive contribution on the advancement of the development of healthcare materials that would aid healthcare professionals when performing their duties. (St. Amant, 2021)

Dimensions of Cognitive Scripts	Construct Characteristics studied in each domain of Cognitive Scripts	Directionality
Marketing and Service Industry	Hotel Management Customer Interaction	**Hotel Management:** Hotel management related to using the cognitive scripts of users in relation to their overall experiences staying at a hotel. Managerial implications should analyze opportunities to better align customer expectations with those of the provider. (Järvi et al., 2020) **Customer Interaction:** The cognitive scripts relating to the interactions between customers who were strangers at a garden center were used to analyze the frequency of these interactions. Results showed that a high degree of interaction between customers indicated an overall positive user experience. Another application of customer interaction had to do with the analysis of cognitive scripts in the industrial marketing sector. Results provided important information to managers regarding purchasing processes and subprocesses. (Leigh & Rethans, 1984; Parker & Ward, 2000)

Dimensions of Cognitive Scripts	Construct Characteristics studied in each domain of Cognitive Scripts	Directionality
Organizational Settings	Scheme Theory, Control Theory and Goal Setting Social Cognition	**Scheme Theory, Control Theory and Goal Setting:** The results from the cognitive script analysis indicated that in business organizations there was purposeful behavior. (Lord & Kernan, 1987) **Social Cognition:** Social cognition had applications in organizational behavior settings. Results provided a framework for better understanding how people perform actions and behaviors within organizations. (Gioia & Poole, 1984)
Entrepreneurship	Cognitive Ability of Entrepreneurs	**Cognitive Ability of Entrepreneurs:** The entrepreneurs with scripts displaying high expertise displayed higher levels of perceived success than their entrepreneur counterparts who have lower levels of expertise. The scripts of entrepreneurs also showed that they use the internet daily which displayed frequent interactions with many websites which centered around the theme of trying to find a new business idea and thinking outside the box. (NOUSKALI, 2019; Sánchez García, 2014)

Dimensions of Cognitive Scripts	Construct Characteristics studied in each domain of Cognitive Scripts	Directionality
Insurance	Professional Services Industry Professional Sales Domain	**Professional Services Industry:** Analyzing the cognitive scripts of users going to the dentist and the analysis of how efficient the application of cognitive scripts in the professional services industry was important. The cognitive script analysis revealed that when the office offered their clients dental insurance, it was beneficial to the patient. (Alford, 1998) **Professional Sales Domain:** Using selling scripts that were collected from sales agents who were employed at an insurance firm to determine how script data could be used to create a sound expert system was what was analyzed. Life insurance was determined to be a suitable product domain for the creation of an expert system. (Ainscough, 1996)

Dimensions of Cognitive Scripts	Construct Characteristics studied in each domain of Cognitive Scripts	Directionality
Shopping Context	Shopping at brick-and-mortar stores Effectiveness of interactions between salespersons and customers Females Shopping Online	**Shopping at brick-and-mortar stores:** The examination of cognitive scripts of people who shopped at brick-and-mortar stores such as grocery and department stores and the examination of steps participants took while shopping was looked at. What was observed through the cognitive scripts was that actions in common such as comparing prices, going to pay cashiers was common in both types of stores. (Stoltman et al., 1989) **Effectiveness of interactions between salespersons and customers:** Salespersons were very effective in their communication with customers had scripts that were elaborate, distinctive, contingent, and hypothetical. Cognitive scripts served as effective managerial implications for managers in the application of cognitive scripts in sales training programs. (Leong et al., 1989) **Females Shopping Online:** Examining the roles that female shoppers took when shopping online for clothes was important. The scripts showed that distinct purchasing behaviors applied in different contexts played a role in whether these females would adopt online shopping behaviors or not. (Jacobs & De Klerk, 2010)

Dimensions of Cognitive Scripts	Construct Characteristics studied in each domain of Cognitive Scripts	Directionality
HCI & UX	HCI when shopping online Redesign of a Website	**HCI when shopping online:** Understanding how cognitive scripts of customers were formed when shopping online for the purchase of digital music was what was of interest. Results showed that when users would perform one (1) visit to many websites, they would perceive it as easier to use compared to users who visited one (1) website multiple times. (Sénécal et al., 2012; Veilleux et al., 2020) **Redesign of a Website:** The goal of the study was the evaluation of the user experience when users would visit a website after a huge redesign. The cognitive load, emotional valence and the overall emotional arousal was measured. Results showed that repeated visits to the website reduced the cognitive load of users. The task type had a moderating effect on task repetition and emotional valence of the novel interface. (Dargent et al., 2019)

Research Gaps in the Literature

Despite the abundance of information relating to cognitive script theory, there were some gaps identified throughout the academic research. Although the themes of insurance and shopping were shown to have applications relating to cognitive scripts, there weren't any studies that particularly related to examining auto or life insurance. Moreover, the theme relating to the cognitive scripts of participants while shopping addressed in the academic research revolved around the themes of interactions between salespersons and customers at in-person stores as well as customers shopping online for clothes. However, there were no mention of shopping for services in an online context. In the context of UX, there was a study relating to the user's cognitive scripts formation while users had to shop online for digital music. However, even though this study addressed the combination of UX and shopping for digital items online, it still did not address the cognitive scripts of individuals when shopping for services online. More specifically, the services in question were not related to insurance services and more specifically, not related to auto and life insurances.

2.3 Conclusion

The subject of insurance literacy is ever present and applicable in diverse areas of academia. However, what the literature did not show was the specific user characteristics exhibited when shopping online for insurance and how insurance literacy could be of help. The literature was more focused on analyzing in real world settings of insurance or other online settings that were not focused on shopping for insurance. The second part of this literature review touched upon how cognitive scripts were used in literature. There were many manners on how cognitive scripts were used in various fields. Moreover, what was of interest was the ways in which cognitive script theory was employed in online settings using Human Computer Interaction (HCI) and User Experience (Veilleux et al., 2020) concepts as well as in insurance settings and with the use of shopping scripts. These articles served as detailed guidelines when designing the process used in the methodology for the analysis of the cognitive scripts generated from the study conducted. This thesis aims to bridge the gap of the analysis of the specific user characteristics directly related to the notion of insurance literacy that would potentially lead to a superior predictor of how a user acts when shopping online for insurance.

There were numerous research gaps and avenues that were not explored in previous literature that would be useful to explore. In the insurance literacy section, the gaps in the literature included user characteristics such as a user's overall familiarity with technology, the path users would take when shopping for insurance online, the type of screen interface that users used to browse data online and information gathering methods of users. In the cognitive script section, despite previous literature addressing the notion of insurance, shopping and UX, a combination of all these themes together was not explored in unison. The academic research conducted for this study aimed to better address the research gaps that were found to not be present in previous literature.

What was accomplished through this literature review through the exploration of previous literature resulted in finding academic articles serving as building blocks for our study. Researching for academic articles surrounding the topics of insurance literacy, cognitive script theory and purchase performance related to shopping for insurance, it was important to discover what already existed in the literature concerning these topics. More specifically, what was uncovered when looking at previous literature were manners in which experimental designs, methodologies, hypotheses, data collection and data analysis were conducted relating to the themes relevant to our study. One study in particular relating to personal insurance literacy served as a basis for creating the questionnaires as well as hypotheses used in our study relating to the topic of insurance literacy (Weedige et al., 2019). There was also one study that touched upon relating on how cognitive scripts would be used as a use case when users would shop in an online setting (Sénécal et al., 2012). Moreover, there was a particular research study showing how the richness of cognitive scripts was measured which ultimately served as a basis for the structure (Choo, 1996). Getting a better understanding of how an experiment should be structured was the key in forming the procedure and experimental design for our study. The following chapter will elaborate more on the theoretical foundation underpinning this research. It will include the proposed hypotheses as well as the proposed research model.

Chapter 3: Theoretical Foundations & Proposed Hypotheses

3.1 Introduction

As more and more services have started doing business online, online insurance services have also grown in popularity (Kopestinsky, 2022). The new reality of using the internet in connection with insurance services has allowed people to easily acquire insurance quotes with a simple click of a button (Kopestinsky, 2022). Before the boom in popularity of the internet, the traditional method for users to get a quote and purchase different variations of insurance policies would be via a physical bank (*Insurance at CIBC*, n.d.). However, the boom of e-commerce websites regarding selling insurance services virtually does come with its own set of challenges. The services may become disrupted and the expectations that users might have might change when going through the customer journey when shopping online (West, n.d.).

Another additional challenge that would be imperative when dealing with insurance online would be users' understanding of what they were buying. When searching and filing an insurance claim online, users might not understand the complex insurance jargon that would need to be entered (Al Maggi, 2019). This in turn could cause people to receive inaccurate results relating to the insurance product they were searching for (Al Maggi, 2019). Shopping for insurance services online also poses a challenge since this type of activity is usually done independently without the help of agent(s) unlike in person where agent(s) are always present. There are certain user characteristics such as education (Edward et al., 2018; Fujiki, 2020; Lefrançois et al., 2017; Lin et al., 2019; Lusardi, 2008; Parragh & Okrent, 2015; Uddin, 2017; Weedige et al., 2019) that would aid in improving the overall easiness that people would feel when navigating though the complex insurance terminology site. This is what constitutes insurance literacy which involves the ability for people to understand what different insurance policies would entail (Tennyson, 2011).

Since shopping online comes with its own set of challenges, trying to understand the customer journey and steps users would take to perform different actions was also imperative to the online shopping process. Understanding the paths users would take to better understand their wants and desires would be important in the professional services domain related to insurance (Ainscough,

1996; Alford, 1998). By analyzing the actions of users going through the customer journey of purchasing, this would also have useful applications in the world of shopping in both an offline and an online context (Jacobs & De Klerk, 2010; Leong et al., 1989; Sénécal et al., 2012; Stoltman et al., 1989). By analyzing the actions users took when performing tasks, this would aid in discovering the link between the actions taken by users and their actual performance in the tasks. The actions taken could then be classified as either being successful or unsuccessful in the conditions stipulated by the study. Thus, this is what cognitive script theory would essentially entail (Dargent et al., 2019; Schank & Abelson, 1975).

Measuring the insurance literacy and cognitive scripts in conjunction with purchase behavior is what was of utter importance for this study. The following section (3.2) explains the various ways the different concepts explained previously would interact with one another. The hypotheses were built upon these concepts and operationalized in a way based on previous academic literature dealing with similar concepts.

3.2 Proposed Hypotheses and Variables

3.2.1 Purchase Performance Behavior

Purchase behavior was operationalized in various ways in the previous literature. Moreover, what helped build the hypotheses explained in the insurance literacy section as well as the cognitive script evaluation section was how performance was shown in relation to these variables. Cognitive scripts allowed for a more in-depth analysis of how well participants performed the different tasks in the experiment. Since our experiment revolved around purchasing performance, the analysis of literature revolving around the theme of shopping scripts was analyzed both in an offline context and in an online context.

There were two (2) studies relating to purchasing performance in an offline shopping setting. These studies involved the interaction between customers and salespersons as well as the diverse steps users would take when going to different types of brick-and-mortar stores (Leong et al., 1989;

Stoltman et al., 1989). In Leong et al.'s (1989) study, the scripts of salespersons interacting with customers as well as customers interacting amongst each other was measured (Leong et al., 1989). Performance was measured by the success arising from determining if the cognitive scripts of participants were elaborate, distinctive and hypothetical which was determined by analyzing the different parts of the cognitive script of participants (Leong et al., 1989). Moreover, in Stoltman et al.'s (1989) journal article, the analysis of various scripts relating to different types of brick-and-mortar in-person stores was analyzed (Stoltman et al., 1989). Being more specific, the specific shopping experiences analyzed involved customers shopping at grocery stores and department stores. Users needed to rate each store action on a 7-point scale concerning the frequency, the importance as well as the similarity between actions on shopping trips (Stoltman et al., 1989).

Moreover, shopping in an online context was also addressed by two (2) studies, one relating to shopping scripts and the other relating to both shopping scripts and UX. The two (2) studies relate to both the examination of online purchasing scripts of users shopping online for either physical products or digital products (Jacobs & De Klerk, 2010; Sénécal et al., 2012). More specifically, Jacobs & De Klerk (2010)'s academic journal article played a particular role in the examination of the behaviors of females while shopping for clothes online (Jacobs & De Klerk, 2010). The different actions and steps of the users' scripts were analyzed in order to assess the expectations and opinion of the ladies shopping for apparel online (Jacobs & De Klerk, 2010). Sénécal et al.'s (2012) study touched upon two (2) themes that were relevant to our study, the themes of online purchasing behavior and user experience (Sénécal et al., 2012). This study recorded the cognitive scripts of participants while they were shopping online for digital products notably digital music in which the purchase behavior scripts of users were analyzed across a diverse array of websites (Sénécal et al., 2012). A mathematical formula was developed to measure the cognitive workload that users felt when visiting each website (Sénécal et al., 2012). The number recorded was used as a baseline of performance behavior.

3.2.2 Control Variable Insurance Type

The control variable, notably insurance type was chosen to be used in our study. The value of this variable would be based on the two (2) insurance variants in this study. Moreover, the two (2) types of insurance conditions tested were auto insurance and life insurance. This study contained

two (2) different conditions of insurance in which approximately half of the participants were assigned to one (1) condition and the other half was assigned to the other. This consisted of a between-subjects design in that participants were only exposed to one (1) of the two (2) conditions throughout the study. The experiment was conducted using the two (2) different types of groups where the task was the same in both conditions except for the types of websites explored.

3.2.3 Cognitive Script Richness

Cognitive script theory was relevant and identified within both an insurance context and within a context where online shopping was involved. The latter helped to display the various steps that different users would take when they would perform activities such as shopping in an in-person context versus an online setting. Procuring insurance in different contexts and the user experience (Veilleux et al., 2020) users felt when shopping online experience (Veilleux et al., 2020) was also notable. Being more specific, the cognitive scripts in these contexts were useful as they accurately displayed the steps users would take when they would go through the process of procuring various products. The ways in which the hypothesis was based upon were themes surrounding insurance, shopping, UX and business. Moreover, there were two (2) studies relating to accounting that operationalized how cognitive scripts would be measured throughout the study.

The themes of insurance, shopping and UX all revolved around the foundation of the hypotheses used for our study. Insurance was a prevalent theme that came up through the cognitive scripts research process. Moreover, previous studies touched upon life insurance and addressed how users would act in accordance with the sequence of activities users had taken when they visited the dentist (Alford, 1998). There was also another study dealing with insurance in the professional sales domain and how using computerized expert systems would impact users when buying life insurance in the context of professional services (Ainscough, 1996). In both these studies, users were offered life insurance in what they considered to be important upon the examination of steps they would undertake to acquire the life insurance in the cognitive script analysis (Ainscough, 1996; Alford, 1998). Additionally, the cognitive scripts of users were analyzed while they were performing the act of shopping. The quality of richness of these scripts

were observed in the context of customers shopping at stores in person versus them shopping online to demonstrate the differences in the scripts users would produce in these various environments (Jacobs & De Klerk, 2010; Leong et al., 1989; Stoltman et al., 1989). What was observed was that common actions existed between customers who were shopping at different types of stores in person but purchasing actions differed between brick-and-mortar stores versus online shopping. Customers activated different cognitive scripts in these contexts and the content of the cognitive scripts would influence the success a user would have when shopping online. Finally, the theme of UX surrounding new website shopping environments was addressed in previous studies in order to better understand the different types of scripts users would form when performing online shopping actions (Dargent et al., 2019; Sénécal et al., 2012). Moreover, there were different user cognitive scripts generated when users were exposed to different shopping conditions such as the exploration of the same website multiple times versus the exploration of similar websites that were explored only once (Sénécal et al., 2012). These previous literatures formed the basis of the hypotheses relating to cognitive script theory.

The hypothesis relating to the concept of the evaluation of cognitive scripts was based on various literature that used a wide assortment of methodologies to evaluate the richness of cognitive scripts. Cognitive script richness was measured based on a study by Choo (1996) and a study by Sénécal et al. (2012). According to Choo (1996), there were three (3) categories that were used for the evaluation of script richness notably Knowledge Distinctiveness, Knowledge Abstractness and Knowledge Contingency (Choo, 1996). The evaluation of Knowledge Contingency was what was of interest in the study, and this involved searching for if-then statement conditional variables as well as conditional variables in other forms (Choo, 1996). The number of cognitive steps variable was based on the number of cognitive actions that were recorded in Sénécal et al. (2012) as well as the counts of the conditional variables mentioned previously originating from Choo (1996) (Choo, 1996; Sénécal et al., 2012). Keeping track of the count of each variable in the cognitive scripts was what was of primary interest. The higher the number of steps and actions, the richer the script would be. A more detailed procedure is explained in section 4.4.5.3 Judgment Study.

Based on these prior research findings, we hypothesize that:

Hypotheses:

H1*: The richer the cognitive script was, the lower the task completion time would be.*

H2*: The richer the cognitive script was, the higher the successful task completion would be.*

3.2.4 Insurance Literacy

Having an overall notion of what insurance literacy consisted of was important to gauge the knowledge of users with respect to insurance related topics. Moreover, there was a plethora of previous literature studies that dealt with measuring a user's literacy with respect to insurance services and products. Using the latter as starting points in searching for articles that revolved around studies examining a user's literacy levels, what was found was that there were studies that measured the overall financial literacy that users possessed (Fonseca et al., 2012; Lin et al., 2019; Lusardi, 2008; Tennyson, 2011). The search for insurance literacy led to discovering studies related to the two (2) types of insurances that were the focus of our experiment notably auto insurance literacy and life insurance literacy. Auto insurance literacy was measured across various studies and the level of literacy users possessed in relation to auto insurance was also measured (Palas, 2014; Valentine & Khayum, 2005). In addition to auto insurance, life insurance was measured in studies where user characteristics were measured to see which of these would have the greatest impact on a user's ability to analyze life insurance (Dragos et al., 2020; Lin et al., 2017). Personal insurance was also a relevant theme that encompassed both auto and life insurance (Weedige et al., 2019).

The various categories of insurance literacy analyzed in previous literature used different ways to measure the overall level of the insurance literacy of individuals belonging to different user groups. The topic of financial literacy with respect to insurance literacy, showed that the most relevant user characteristics that would influence one's overall insurance literacy would be education (Lin et al., 2019; Lusardi, 2008), gender (Fonseca et al., 2012) and the way users would

get their information about insurance (Tennyson, 2011). Lin et al. (2019) and Lusardi (2008) studies both showed that a higher insurance literacy was positively correlated with having a higher education (Lin et al., 2019; Lusardi, 2008). Moreover, the overall level of financial literacy in both studies was assessed via survey questionnaires which consisted of questions regarding financial literacy and the overall percentage score of users. This was used as a gauge of their level of financial literacy (Lin et al., 2019; Lusardi, 2008). Gender was an important factor that was assessed in Fonseca et al.'s (2012) study. This study indicated that males were more likely to have higher financial literacy levels than females since this was measured via a questionnaire covering topics such as financial concepts, investments and life insurance and annuities (Fonseca et al., 2012). The differences in financial literacy between genders was assessed via a financial literacy index which displayed the differences in financial literacy levels between men and women (Fonseca et al., 2012). Finally, the last factor assessed was the way users would seek information regarding financial products (Tennyson, 2011). What Tennyson's (2011) study showed was that people with lower financial literacy tended to seek insurance information via informal sources such as from friends or family (Tennyson, 2011). The level of insurance literacy was assessed via a 10-question quiz about insurance and the score percentages were recorded from what the users obtained on the quiz (Tennyson, 2011).

Auto insurance was another category of insurance literacy that was found to be relevant for the formation of our hypotheses. Palas's (2014) study showed that age played a significant factor in determining the auto insurance literacy that a user possessed and showed that the older the user was, the higher their overall auto insurance literacy was (Palas, 2014). The way that this study measured the level of insurance literacy was via a self-reported questionnaire regarding vehicle owners measured on a 5-point Likert scale (Palas, 2014). The questionnaires included in the survey had seven (7) different categories notably: insurance uptake, driving attributes, vehicle specifications, perception of accident risk, neighborhood effects, road safety awareness and insurance literacy (Palas, 2014). Valentine & Khayum's (2005) study showed that students in high school coming from rural areas had higher scores on average compared to their counterparts living in urban areas on a financial and auto insurance quiz (Valentine & Khayum, 2005). The way that this study measured the level of insurance literacy was with a quiz in which the score was recorded and contained six (6) different categories notably credit cards, checking and savings accounts,

automobile insurance, housing rental, food purchases and car purchases (Valentine & Khayum, 2005).

Life insurance literacy was yet another category of insurance literacy that was also relevant for the formation of our hypotheses. Lin et al.'s (2017) study showed that marital status was an important user characteristic having an influence on one's life insurance literacy in that married people were more likely to purchase life insurance (Lin et al., 2017). The way that this study measured the level of insurance literacy was via a nationwide survey of 22 counties in Taiwan and the survey included questions regarding life insurance (Lin et al., 2017). Dragos et al.'s (2020) study showed that the user characteristic of income was relevant for the overall level of life insurance literacy for Romanian citizens and this study showed that Romanian counties with higher-than-average salaries demanded more life insurance policies (Dragos et al., 2020). The way that this study measured the level of insurance literacy was a questionnaire made for 2020 Romanian consumers containing five (5) distinct categories notably: economic factors, socio-demographic factors, general behavioral factors, specific behavioral factors, and self-constructed index of insurance knowledge (Dragos et al., 2020).

Based on these prior research findings, we hypothesize that:

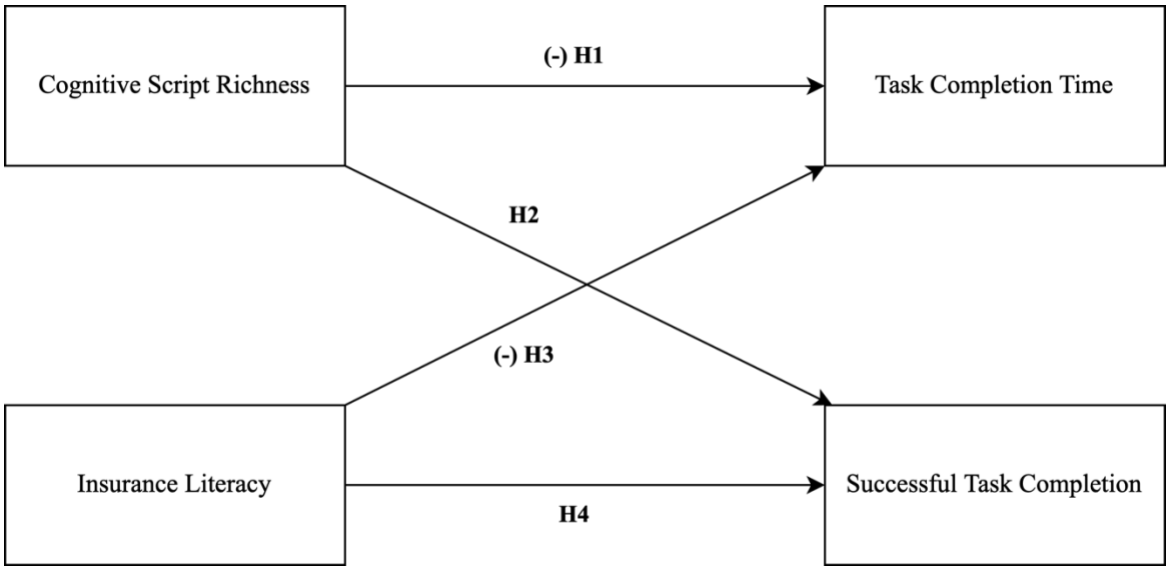
Hypotheses

> ***H3:*** *The higher one's insurance literacy would be, the lower the task completion time would be.*
>
> ***H4:*** *The higher one's insurance literacy would be, the higher the successful task completion would be.*

3.2.5 Proposed Research Model

Using the information provided in the previous two (2) sections notably the insurance literacy section as well as the cognitive scripts section, a research model was created. This research model demonstrates the hypothesized relationships between the various variables and constructs previously mentioned. The proposed research model is shown below.

Figure 2: Proposed Research Model



Chapter 4: Research Methodology

4.1 Experimental Design

The experimental design involved a between-subjects design. The reason why a between-subjects design was chosen was due to our study having two (2) conditions notably the auto insurance and life insurance conditions in which the websites were tested independently from one another. The insurance type condition served as a moderating variable, and we wanted to observe if there existed any differences between the type of insurance in relation to purchase performance behavior. Approximately half of the participants were assigned to one (1) condition either the auto or life insurance condition whereas the other half were assigned to the other condition for the length of the study. More specifically, the auto condition and life condition tested different variables which manifested themselves as the type of websites a user would visit when going through the experiment. The type of website variable visited served as the between factor condition in this experiment. Moreover, the experiment consisted of two (2) groups notably the auto insurance group consisting of twenty-two (22) participants and the life insurance group consisting of twenty (20) participants.

4.2 Sample

Our sample was composed of a total of forty-two (42) participants who comprised of twenty-four (24) men (57% of the sample) and eighteen (18) women (43% of the sample). The ages of the participants ranged from 20 to 64 years old with a mean total age of 42.33. For the males, the mean age was 43.41 and their ages ranged from 27 to 64 years old. For the females, the mean age was 40.89 and their ages ranged from 20 to 60 years old. The participants were based in the province of Ontario in Canada with a mix of participants already being clients (Auto: 9 clients, Life: 1 client) of an Ontario-based insurance provider and some being non clients (Auto: 13 non clients, Life: 19 non clients).

The participants who partook in this study were recruited via the research panel (SOM) (*SOM: Quebec's indispensable market research firm*, n.d.). The age exclusion criteria included people either under 18 years old or over 65 years old. Additionally, the exclusion criteria included participants who did not have auto insurance or life insurance and participants who were not responsible or part of the process of conducting household insurance decisions. The study was approved by the ethics board in our institution, HEC Montréal.

4.3 Experimental Task and Stimuli

The experimental task consisted of participants trying to search for insurance related websites provided by the insurance provider via Google Search to try to get a submission for insurance. There were various webpages on the insurance provider's website pertaining to receiving an insurance submission which varied depending on whether participants were assigned to the auto insurance condition or the life insurance condition. After finding a website related to insurance products on the provider's website, the user would be given an exploration task depending on the type of website chosen. They would then be re-directed to find another website that would provide the same outcome but would do so in a different manner. Task success would be defined by users successfully navigating through the two (2) websites involved in the website path with the intention to subscribe to insurance online. This task was denoted as the "insurance subscription task" throughout our study as the main reason for going through with this task was measuring a user's success defined by their ability to subscribe to insurance online.

There were two (2) distinct types of webpages present on the insurance provider's website used for this study. The first website consisted of a webpage relating to retrieving insurance in a manner involving an agent distribution channel which was defined by the acronym "DAN" for this study. There were two (2) variations of the "DAN" website notably one (1) website containing an agent search page where a participant could select an agent and view their information to proceed to make an insurance submission. The latter would be defined to be the "DAN (Agent)" webpage. The second variation of the "DAN" webpage involved participants needing to go through a form to file an insurance submission. The latter webpage would contain a help section on the bottom with an agent's contact information and this would be known as the "DAN (Form)" webpage.

Moreover, the second website also involved a distribution channel, but the difference was it consisted of a distribution channel involving customer representatives and this website was defined by the acronym “DLI” for this study. There was only one (1) variation of the “DLI” website which revolved around the theme of life insurance. The entire task which encompassed this paragraph was the insurance subscription task.

4.4 Procedure

4.4.1 Overview of Pre-Task Activities and Welcoming Participants

On the day of the experiment, the participants were welcomed, and they had to confirm that they read and understood what the consent form described about the study they were volunteering for. After that was completed, participants completed a questionnaire, and then a pretest interview was conducted where the overall cognitive process and steps the participants needed to take when shopping for insurance was recorded. The length of the entire experiment across the two (2) conditions was about the same on average.

4.4.2 Insurance Subscription task

Upon the completion of the pre-test interview, the insurance submission test would follow. The main task was the insurance subscription task which was the task that was relevant to our study. Moreover, users were asked to explore two (2) webpages pertaining to retrieving an insurance submission from the insurance service provider. The websites that would be explored depended upon the type of condition they were being given, notably either the auto insurance or the life insurance conditions. The same procedure was employed across both the auto insurance and the life insurance conditions. Participants were first asked how they would go searching online if they would proceed if they had to subscribe to insurance with the insurance provider in question. The first step was to conduct a Google Search where the user had to search for a website relating to the insurance provider with regards to insurance. In both the auto insurance and life insurance

conditions, users were instructed to go through the two (2) websites that had the same purpose when submitting a quote to subscribe for insurance online.

A website path is defined as the set and order of the two (2) websites that the user navigated through in the insurance subscription task. The order that the users visited the websites was a decision that was made entirely up to them. The two (2) websites' that the users would go through, would form a website path and the website path variable would ultimately serve as a determinant for task success. If the exploration of both websites involved in the website path would be successful, it is only then that the task would be considered a success in the case of the life insurance condition. In the auto condition, there would be an additional step taken where users would need to go through a second path exploration where the order of the websites in the first path would be reversed. If both paths were successfully explored, then the task would be considered a success in the case of the auto insurance condition.

In the auto insurance condition, there was one (1) primary website tested having two (2) variations. The website that was used for user testing was notably navigating through each DAN version of the website in the context of getting an insurance policy. The user would go through the user subscription task through an agent which was known as the "DAN (Agent)" website. Moreover, in the user subscription task, users would go through a form which was known was the "DAN (Form)" website. More specifically, the DAN website was tested via a website path in the context of getting an insurance policy via visiting the two (2) websites in succession. Notably, the agent webpage would be visited first where users would choose an agent to help them subscribe to an insurance policy which was followed by a form webpage having a form where users could fill out to get an insurance policy. The websites could also be visited in reverse order. The success criteria involved users needing to successfully go through two (2) paths. Notably going through the path denoted by the variable **SUCCESS_SITE1_AUTO** in the order of going to the DAN (Agent) website followed by the DAN (Form) website and **SUCCESS_SITE2_AUTO** variable in the order of going to the DAN (Form) website first followed by the DAN (Agent) website. The users were free to choose either path to go through first.

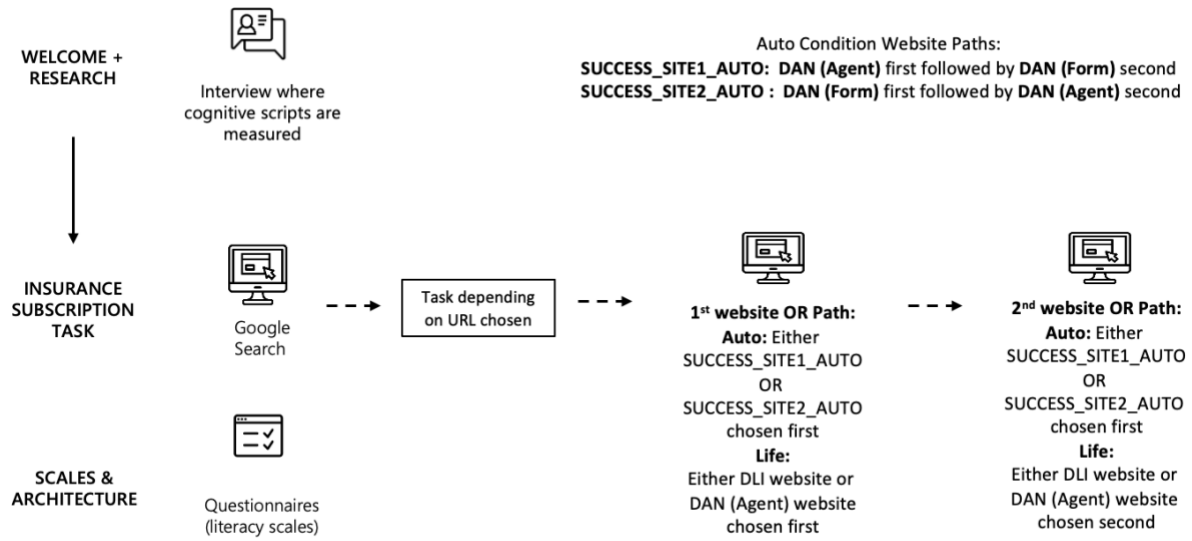
In regards to the success criteria involved in the experimental task, there were specific criteria that needed to be satisfied for each website in which the variable involved in the website path to be considered a success. For the DAN (Agent) website to be considered successful, a user would need to click on the "send quote to agent" button after the exploration of that website. Moreover, for the DAN (Form) website, success was related to the completion of the form in its entirety.

A partial success would be considered if the participant stopped at the page where the "send quote to agent" button was present but did not click on the submit button in the DAN (Agent) condition. If the user needed help from the moderator while trying to find the form for submission, then the overall task was considered a failure in the DAN (Form) condition. For the task to be considered an overall success, each of the two (2) website paths involving the DAN (Agent) and DAN (Form) websites would need to be successful for the insurance subscription task to be successful. The variable for success would be denoted by Subscription Task Success (Auto).

In the life insurance condition, the same procedure occurred as in the auto condition but only with small differences in the website types. There were two (2) types of websites tested in the workflow notably the DLI and DAN websites. More specifically, the DAN (Agent) website was used in this case. The DLI website was tested in the context of getting an insurance policy via the life insurance website of the insurance provider. The DAN (Agent) website involved acquiring insurance via the website involving agents. Participants would be given the option to choose the website they would start the navigation with, and the order of the website visited would not matter. Success would be defined in the DAN (Agent) condition when displaying the list of results generated after searching for an agent. Moreover, if the participant mentioned that they wanted to call the agent directly and the participant would arrive on an agent's website, this would be part of the success criteria as well. Moreover, success would be defined in the DLI condition if the user found the form as well as the telephone number to book an appointment with a representative within three (3) minutes. A partial success would be considered in both the DAN (Agent) and the DLI websites if after three (3) minutes the user would not be successful with regards to navigating through the websites. If this was the case, then the moderator would prompt the user with the following question: "how would you proceed to subscribe to this insurance?". After this question

would be launched, the user would successfully navigate through the website(s) and this would be considered as a partial success. Finally, failure in both cases would have occurred if after being prompted by the moderator again, the user would not be able to fulfill the criteria for success in each website. If failure were to occur, the moderator would prompt the user to proceed with the next website. Both the DLI and the DAN website would need to be navigated successfully for the insurance subscription task to be successful.

Figure 3. Experimental Design Procedure for Both Auto and Life Conditions



4.4.3 Instruments and Apparatus

Since the experiment was conducted entirely in a remote format, there were no physical equipment used by the participants while going through the experiment. The data collection was conducted remotely using the Lookback platform; a tool used for user research for conducting remote tests on various platforms (*Lookback: Simple, powerful, user research*, n.d.). This platform was used as it has the capability to display and record the contents of the participant's computer display screen, as well as their video and audio transcription. Moreover, the tool that was used to collect the answers to the questionnaires was the software tool Qualtrics. Qualtrics is a web-based software used for the creation of surveys with the option to add questions such as

multiple-choice Likert scale type questions Likert scales such as the 5-point and 7-point scales, affective sliders (measuring emotions), etc. (*Welcome to XM*, n.d.).

4.4.4 Measures

The measures in the research study included an interview and questionnaires that the participants had to complete. The latter needed to be completed as part of the academic research activities and the data obtained from the interview and questionnaires would later be used to analyze the results from the hypotheses that were mentioned previously in chapter 3. The measures that were included in this study are described below in sections 4.4.4.1 and 4.4.4.2.

4.4.4.1 Initial Pretest User Interview

In both the auto and life insurance conditions, participants participated in a pretest user interview where their cognitive scripts were measured. The way the cognitive scripts were measured was via the Lookback platform (*Lookback: Simple, powerful, user research*, n.d.) where the transcripts of the participants were measured using the transcript recording feature on Lookback. Participants were then asked to describe their expectations when they would search for insurance online as well as the process that they would take when subscribing to a car insurance policy in either the auto or life insurance conditions. The transcript included answers to questions regarding the process users would undertake when proceeding to shop for insurance in an online context. This pre-test interview recorded the cognitive scripts of participants when shopping for insurance in an online setting. The steps the users mentioned they would undertake is part of the cognitive script process in which users would outline the steps they would take when proceeding to subscribe to insurance. The cognitive scripts of users measured in the pretest user interview related to the actual user submission task where the users would apply their knowledge in an online context.

4.4.4.2: Post-Experience Questionnaire

The post-experience questionnaires were what was central to the academic research activities. What was measured was the measure of a person's insurance literacy that was calculated on a 5-point Likert scale or questions involving only two (2) choices such as agree or disagree as the choices. This was done as an assessment of how much an individual knew concerning either auto insurance, life insurance or insurance in general. The questions were based on scales defined by Weedige et al. (Weedige et al., 2019). A scale, which was also known as the consumers' insurance literacy scale, was created to measure the actual level of insurance that participants had relating to insurance. This scale was based on Weedige et al.'s scale and consisted of a total of twelve (12) questions that had two (2) answers which were agree or disagree (Weedige et al., 2019). The score obtained from this questionnaire was a good indicator of a user's actual knowledge concerning insurance literacy.

4.4.5 Operationalization of Research Variables

There were three (3) main constructs in which our hypotheses were built upon when conducting this study that were of interest. The constructs represented the independent variables of the experiment which included the cognitive script richness of one's cognitive script as well as perceived insurance literacy. These abstract research concepts present in our study contained variables which would be operationalized and measured on the empirical plane which is also known as the observational plane (Bhattacherjee, 2021). In each of these three (3) general constructs, there was an operationalization of the research variables related to each construct. More specific descriptions of the operationalization of each variable are described in the appendices Appendix 1: Overview of Operationalization of Research Variables and Appendix 2: Detailed description of Operationalization of Purchasing Performance Variables.

4.4.5.1 Purchase Performance Variables

There were two (2) performance variables relating to purchase performance success. This would represent the success of the participants when performing the user submission task and the time to perform this task. More specifically, success was defined by the completion of the various steps of the user submission task in both the auto and the life conditions. In the auto

condition, success was measured by the two (2) DAN website paths and both paths needed to be navigated successfully or else the task would be considered a failure. In the life condition, success was measured by navigating through the DLI and DAN website path and successful navigation through both websites would be needed to have a complete success or else the task would be considered a failure. This was noted by the **SUCCESS_SITE1_AUTO** and **SUCCESS_SITE2_AUTO** variables. Moreover, in the life condition, success was measured using the DLI website path taken denoted as **SUCCESS_SITE1_LIFE** as well as the DAN website path taken denoted as **SUCCESS_SITE2_LIFE**. These variables were used to analyze the data collected from the experiment in both the auto and life conditions. Both hypotheses mentioned in the Theoretical Foundations and Proposed Hypotheses section used performance measure variables. The overall success for the auto condition participants and the life condition groups were combined to come up with the overall variable of success called **SUCCESS_BIN.**

4.4.5.2 Cognitive Script Richness Variables

In the cognitive script richness construct, there were three (3) variables that were used to operationalize cognitive script richness which included **IF_THEN_CONDITIONAL_COUNT, OTHER_CONDITION_COUNT** and **COGNITIVE_STEPS**. These variables were used to analyze the data collected from the judgement study. The judgment study sample is described in the following section as well as the process in which the judgment study was used to operationalize the specific data variables. The purpose for conducting the judgement study was to get data related to the cognitive script richness of the scripts generated by the participants in our study. By using the data obtained from the judgment study, the values of **IF_THEN_CONDITIONAL_COUNT, OTHER_CONDITION_COUNT** and **COGNITIVE_STEPS** would be produced.

4.4.5.3 Judgement Study

Our judgment study sample was composed of ten (10) judges. The sample consisted of three (3) men (30% of the sample) and seven (7) women (70% of the sample). The ages of the participants ranged from 22 to 33 years old (Age of participants: mean = 27.60, SD = 3.84). The

sample was entirely comprised of Graduate students that were either master's students studying in the UX Master's program at HEC Montreal (8 judges), a PhD student studying at HEC Montreal in Information Systems with knowledge of UX concepts and tools (1 judge) and a master's student studying in a Data Analytics program with knowledge of UX concepts.

The judges were put into five (5) groups of two (2) where each judge was given a total of twenty-one (21) cognitive scripts from the insurance literacy study to analyze. Within each group, there was a mix of ten (10) life insurance participants and eleven (11) auto insurance participants to analyze or vice versa. More specifically, each pair of participants received a unique mix of twenty-one (21) cognitive scripts from the insurance literacy study and within each pair of judges, there was an overlap of five (5) participants' cognitive scripts to analyze. Within the five (5) participant overlaps, there were either three (3) auto cognitive scripts and two (2) life cognitive scripts or vice versa.

The number of "if-then" statements present in the cognitive script of participants was measured by counting the number of times the words "if" and "then" individually appeared in the script. These individual counts were then summed up to reach a final count for the "if-then conditionals" variable. The same thing was done with the other conditional statements but for the auxiliary phrases "I would", "I think", "I might" and "I could". The individual counts of each were summed up to reach a final number for the "other conditionals" variable. After the total counts in each variable were calculated, the inter-coding reliability was calculated for the five (5) overlapping participants' cognitive script values within the judge groups, to make sure that the values between judge groups were consistent (Choo, 1996). The mean values for each overlap between judges were saved in two (2) other variables namely "CA If-Then" and "CA Other Conditionals" which would represent the richness of the cognitive scripts of the participants.

However, the process above differed when calculating the number of cognitive steps present in each participant's cognitive script as it involved previous knowledge pertaining to the process of obtaining a count for the two (2) variables representing the "if-then conditionals" and "other conditionals". Additionally, conjunction phrases such as "and" and "and then" were accounted for when going through the steps to obtain a total number of cognitive steps. The process would occur

such as if a conditional phrase pertaining to one (1) of the conditional phrases mentioned earlier appeared in a sentence, then this would be counted as one (1) cognitive step. If two (2) conditional phrases appeared in the sentence alongside a conjunction phrase, then the word or phrase coming before the conjunction phrase would be considered a cognitive step and the one coming after the conjunction would be considered another cognitive step. If the conditional phrases would appear right next to each other in a sentence, this would be considered one (1) cognitive step rather than two (2). The total count for each sentence would be calculated by adding the counts of each sentence together. The mean values for each overlap between judges were saved in a variable namely "Cognitive Script Richness" which would be one (1) of the three (3) variables representing the richness of the cognitive scripts of the participants.

4.4.5.4 Perceived Insurance Literacy Variables

The variable described as a post-experience perceived insurance variable was based on a consumer's insurance literacy scale. This scale contained twelve (12) questions relating to measuring the insurance literacy. The consumers had to respond to the questions given in the form of agreeing or disagreeing to the question statements.

4.4.5.5 Insurance Type

The one (1) control variable in this study was insurance type. This control variable could be one (1) of two (2) values which indicated the condition of insurance that participants were assigned to. The two (2) options were notably auto or life insurance.

Chapter 5: Results

The main goals for this study were the examination of both the impact of a participant's insurance literacy level and the cognitive script richness on the performance that participants had when intending to subscribe to insurance online. This results chapter was split into four (4) sections. The first section was the purchase performance behavior section which addressed the variables that would pertain to the overall performance of users on the insurance subscription task. The second section addressed the control variable of insurance type which contained the hypothesis relating to using the control variable of insurance type in conjunction with a purchase performance behavior variable. This section contained data from the analysis as well as results of the hypothesis. The third section pertained to cognitive script theory which addressed how the cognitive script theory variables were used in the hypotheses in conjunction with purchase performance behavior variables. This section also contained data from the analysis as well as the results of the hypothesis. The fourth and final section of this chapter was the insurance literacy section which showed how the variables pertaining to insurance literacy would interact with purchase performance variables in the hypotheses.

5.1 Purchase Performance Behavior

Perceived task performance behavior relating to when users were to subscribe to insurance online was defined by the variables **SUCCESS_BIN** and **COMPLETION_TIME**. More specifically, what each of these variables represented was the success obtained by the insurance subscription task. The first variable **SUCCESS_BIN** involved the overall success in either condition which was obtained by participants when they would traverse through the website path(s) as part of the insurance subscription task part of the study. Reminder that a website path is defined by the set and order of the two (2) websites that the user navigated through. There was also the **COMPLETION_TIME** variable which involved the amount of time in seconds it would take for participants to complete the insurance subscription task. A more detailed description of the results is shown in the operationalization of variables section under section 4.4.5.1 Purchase Performance Variables as well as in the Appendix 1: Overview of Operationalization of Research

Variables and Appendix 2: Detailed description of Operationalization of Purchasing Performance Variables.

Moreover, besides the variables mentioned earlier, the hypotheses related to purchase performance also included the variables of cognitive script richness and perceived consumer insurance literacy. There were three (3) variables which were denoted relating to cognitive script theory and these were: **COGNITIVE_STEPS, IF_THEN_CONDITIONAL_COUNT** and **OTHER_CONDITION_COUNT** and one (1) variable for insurance literacy which was **INS_LITERACY**. These variables were numerical values, but the difference was that cognitive script richness could be a decimal number score whereas consumer insurance literacy was an integer number score. The way in which these variables would interact with the perceived performance variables would be described in the sections below.

5.2 Insurance Type

Insurance type was defined as the type of insurance that was being analyzed in the insurance subscription task. Moreover, there were two (2) conditions of insurance in the study, notably the auto insurance condition and the life insurance condition where a participant would be assigned to only one of the conditions for the study. The latter is what consisted of the insurance type and was denoted by the variable **TYPE.**

5.3 Cognitive Script Theory

Cognitive Script Theory was important for the analysis of the cognitive scripts generated by users since cognitive script richness would be generated from these cognitive scripts. Moreover, the cognitive scripts of users were recorded when participants would describe in detail when questioned regarding their process of subscribing to insurance in an initial pretest interview. The cognitive scripts were saved as a form of text transcription that would later be analyzed. There was one (1) variable **COGNITIVE_STEPS** that played an important role when analyzing the cognitive script richness of a user's process. Moreover, there were two (2) variables notably the variables of **IF_THEN_CONDITION_COUNT**, and **OTHER_CONDITION_COUNT**, that

played a role in determining what the overall cognitive script richness of a transcription would possess. The **IF_THEN_CONDITION_COUNT** variable included a count of the total number of occurrences of the "if then" conditionals in the cognitive script. Moreover, the **OTHER_CONDITION_COUNT** variable included a count of the total number of occurrences of other conditional statements which included the phrases "I would", "I think", "I might", "I could" and the conjunction "and then". Finally, the **COGNITIVE_STEPS** calculated the number of cognitive steps based on the results from the **IF_THEN_CONDITIONAL_COUNT** and in the **OTHER_CONDITION_COUNT** which displayed how the participants went from an initial point to the final point in the process of purchasing insurance. The relationship of **COGNITIVE_STEPS** with **COMPLETION_TIME** and **IF_THEN_CONDITION_COUNT** with **SUCCESS_BIN** is examined below.

5.3.1 Statistical Analyses and Results

For the **H1** hypothesis, a one-tailed directional linear regression test was used to analyze if there was a relationship between the two (2) variables of **COGNITIVE_STEPS** and **COMPLETION_TIME**. The latter variables were both used in the hypothesis. The p-value that was calculated for this hypothesis was 0.0418 for the one-directional test. Moreover, there was a null hypothesis that was defined for the **H1** hypothesis conducted which was denoted as $\mathbf{H_0}$. This stated that the number of cognitive steps involved in the cognitive script richness analysis is not a useful predictor of task completion time. There was also the alternative hypothesis denoted as $\mathbf{H_a}$ which stated that the number of cognitive steps involved in cognitive script richness is a useful predictor of task completion time. A 0.05 significance level was used to test the p-value to determine if $\mathbf{H_0}$ was rejected or accepted. Since the p-value was 0.0418 and $0.0418 < 0.05$, we reject the null hypothesis $\mathbf{H_0}$. The p-value was significant since it was less than 0.05. Additionally, the t-value for the test statistic was calculated to be -1.77 with a degree of freedom value of 40. When looking at the t-distribution table, what was noted was that at the 0.05 significance level, the critical value was 1.684. When comparing the t-distribution t-value to the test statistic t-value, what was noted was that since the test statistic was negative, we needed to convert the t-distribution t-value into a negative value when comparing the two (2) t-values. Thus, the values of -1.684 and -1.77 would be compared using a lower one-sided test and since -1.77 (the test statistic t-value) was smaller than -1.684 (the table t-value), we reject the null hypothesis $\mathbf{H_0}$ which was defined

above. This proves that at the 95% confidence interval of significance, there exists enough evidence to conclude that the number of cognitive steps involved in cognitive script richness is a significant predictor of task completion time. Moreover, the estimate was -6.2235, and there was a negative relationship between the two (2) variables of **COGNITIVE_STEPS** and **COMPLETION_TIME** which meant that when one variable would increase, the other variable would decrease as a result. The latter stated the same as the original hypothesis which stated that the richer the cognitive script was, the lower the task completion time would be. What this concluded was that there existed a fully supported relationship between the two (2) variables being analyzed and thus the hypothesis **H1** would be fully supported. This hypothesis showed a direct effect between the two (2) variables being analyzed.

For the **H2** hypothesis, a one-tailed simple directional logistic regression test was used to analyze if there was a relationship between the two (2) variables of **IF_THEN_CONDITION_COUNT** and **SUCCESS_BIN** used in the hypothesis. The p-value that was calculated for this hypothesis was 0.04475 for the one-directional test. Moreover, there was a null hypothesis that was defined for the **H2** hypothesis that was conducted which was denoted as $\mathbf{H_0}$ and it stated that the number of "if conditions" involved in cognitive script richness is not a useful predictor of successful task completion. There was also the alternative hypothesis denoted as $\mathbf{H_a}$ which stated that the number of "if conditions" involved in cognitive script richness is a useful predictor of successful task completion. A 0.05 significance level was used to test the p-value to determine if $\mathbf{H_0}$ was rejected or accepted. Since the p-value was 0.04475 and $0.04475 < 0.05$, we reject the null hypothesis $\mathbf{H_0}$. The p-value was significant since it was less than 0.05. Additionally, the t-value for the test statistic was calculated to be -1.74 with a degree of freedom value of 42. When looking at the t-distribution table, what as noted was that at the 0.05 significance level, the critical value was 1.682. When comparing the t-distribution t-value to the test statistic t-value, what was noted was that since the test statistic was negative, we needed to convert the t-distribution t-value into a negative value when comparing the two (2) t-values. Thus, the values of -1.682 and -1.74 would be compared using a lower one-sided test and since -1.74 (the test statistic t-value) was smaller than -1.682 (the table t-value), we reject the null hypothesis $\mathbf{H_0}$ which was defined above. At the 95% confidence interval of significance, there exists enough evidence to

conclude that the number of students included in the "if conditions" involved in cognitive script richness is a significant predictor of successful task completion. Moreover, the estimate was -0.2608, and there was a negative relationship between the two (2) variables of **IF_THEN_CONDITION_COUNT** and **SUCCESS_BIN**. This meant that when one variable would increase, the other variable would decrease as a result. The latter stated something different from the original hypothesis which stated that the richer the cognitive script was, the higher the successful task completion would be. What this concluded was that even though there existed a significant relationship between the two (2) variables, the results showed that the variables did not increase simultaneously so a fully supported hypothesis could not be established. Thus, there is partial support for the hypothesis **H2**.

5.4 Insurance Literacy

Perceived Insurance literacy was measured using the variable **INS_LITERACY** in the analysis of these variables. A post-experience questionnaire was given to participants where users were asked one dozen questions regarding general insurance literacy including questions relating to auto and life insurance. The way in which the questions were asked was to answer questions via agreeing or disagreeing to statements. The total score was calculated via adding up the right answers that the users would give for each question and a total numerical integer score would be recorded. A higher number would indicate a higher insurance literacy score implying users having higher insurance literacy. The relationship of **INS_LITERACY** with **COMPLETION_TIME** and **INS_LITERACY** with **SUCCESS_BIN** is examined below.

5.4.1 Statistical Analyses and Results

For the **H3** hypothesis, a one-tailed simple directional linear regression test was used to analyze if there was a relationship between the two (2) variables of **INS_LITERACY** and **COMPLETION_TIME** used in the hypothesis. The p-value that was calculated for this hypothesis was 0.07915 for the one-directional test. Moreover, there was a null hypothesis defined for the **H3** hypothesis that was conducted which was denoted as $\mathbf{H_0}$ and it stated that a higher insurance literacy is not a useful predictor of task completion time. There was also the alternative

hypothesis denoted as $\mathbf{H_a}$ which stated that a higher insurance literacy is a useful predictor of task completion time. A 0.05 significance level was used to test the p-value to determine if $\mathbf{H_0}$ was rejected or accepted. Since the p-value was 0.07915 and 0.07915 > 0.05, we fail to reject the null hypothesis $\mathbf{H_0}$. Additionally, the t-value for the test statistic was calculated to be 1.44 with a degree of freedom value of 40. When looking at the t-distribution table, what as noted was that at the 0.05 significance level, the critical value was 1.684. The values of 1.684 and 1.44 would be compared using an upper one-sided test and since 1.44 (the test statistic t-value) was smaller than 1.684 (the table t-value), we fail to reject the null hypothesis $\mathbf{H_0}$ which was defined above. At the 95% confidence interval of significance, there does not exist enough evidence to conclude that a higher insurance literacy is a significant predictor of successful task completion. Moreover, the estimate was 14.2897, there was a positive relationship between the two (2) variables of **INS_LITERACY** and **COMPLETION_TIME** which meant that when one variable would increase, the other variable would also increase as a result. The latter stated something different from the original hypothesis which stated that the higher insurance literacy was, the lower the task completion time would be. What this concluded was that there was a partially significant relationship between the two (2) variables and the variables increased simultaneously rather than only one variable increasing causing the other variable to decrease as stipulated in the hypothesis. Thus, a fully supported hypothesis could not be established. Thus, we reject the hypothesis **H3**.

For the **H4** hypothesis, a one-tailed simple directional logistic regression test was used to analyze if there was a relationship between the two (2) variables of **INS_LITERACY** and **SUCCESS_BIN** used in the hypothesis. The p-value that was calculated for this hypothesis was 0.24565 for the one-directional test. Moreover, there was a null hypothesis that was defined for the **H4** hypothesis that was conducted which was denoted as $\mathbf{H_0}$ and it stated that a higher insurance literacy is not a useful predictor of successful task completion. There was also the alternative hypothesis denoted as $\mathbf{H_a}$ which stated that a higher insurance literacy is a useful predictor of successful task completion. A 0.05 significance level was used to test the p-value to determine if $\mathbf{H_0}$ was rejected or accepted. Since the p-value was 0.24565 and 0.24565 > 0.05, we fail to reject the null hypothesis $\mathbf{H_0}$. The p-value was not significant since it was greater than 0.05. Additionally, the t-value for the test statistic was calculated to be -0.69 with a degree of freedom value of 42.

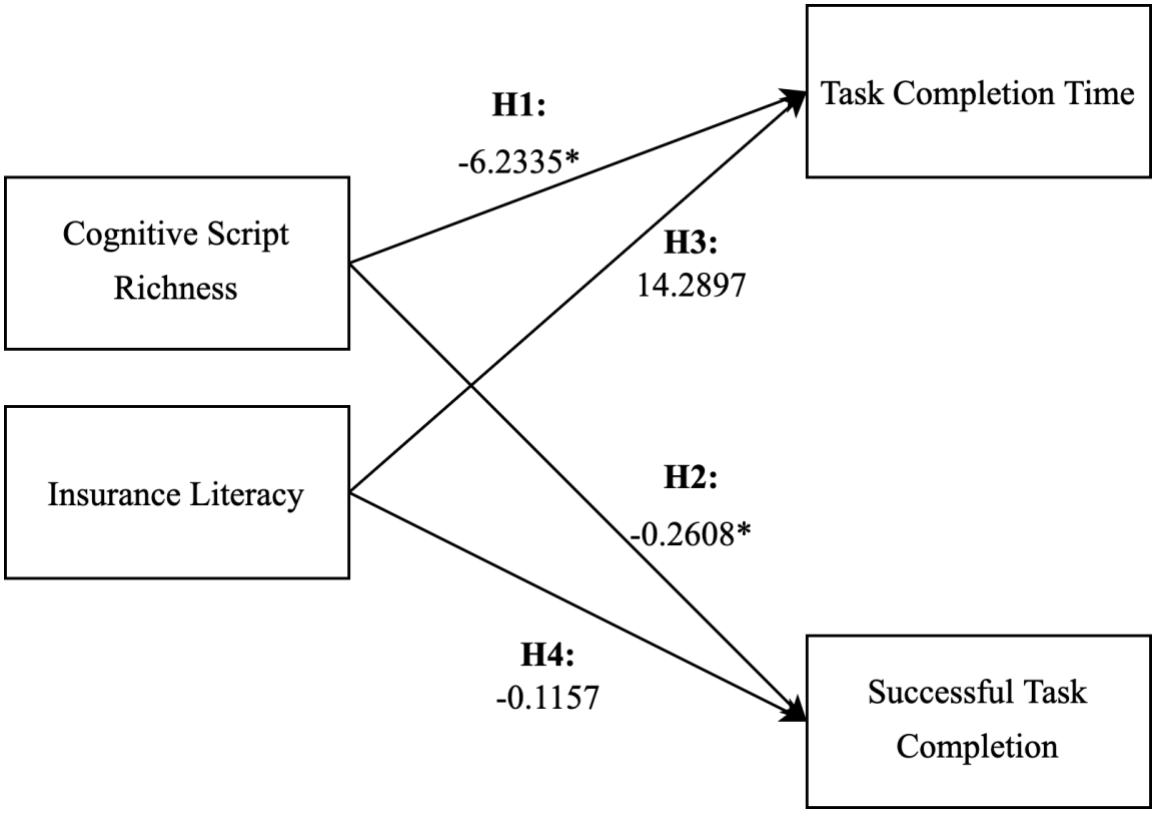
When looking at the t-distribution table, what was noted was that at the 0.05 significance level was that the critical value was 1.682. When comparing the t-distribution t-value to the test statistic t-value, what was noted was that since the test statistic was negative, we needed to convert the t-distribution t-value into a negative value when comparing the two (2) t-values. Thus, the values of -0.69 and -1.682 would be compared and since -0.69 (the test statistic t-value) was not smaller than -1.682 (the table t-value), we fail to reject the null hypothesis $\mathbf{H_0}$ which was defined above. At the 95% confidence interval of significance, there does not exist enough evidence to conclude that a higher insurance literacy is a significant predictor of successful task completion. Moreover, the estimate was -0.1157, and there was a negative relationship between the two (2) variables of **INS_LITERACY** and **SUCCESS_BIN** which meant that if one (1) variable would increase, the other variable would also increase as a result. What this concluded was since there did not exist a significant relationship between the two (2) variables and the results showed that the variables did not increase simultaneously as stipulated in the hypothesis, a fully supported hypothesis could not be established. Thus, we reject the hypothesis **H4**.

Table 4: Results of Hypotheses Testing

Hypothesis	From	To	Estimate	p-value	t-value	Status
H1	Cognitive Script Richness	Task Completion Time	-6.2235	0.0418*	-1.77	Supported
H2	Cognitive Script Richness	Successful Task Completion	-0.2608	0.04475*	-1.74	Partially Supported
H3	Insurance Literacy	Task Completion Time	14.2897	0.07915	1.44	Not Supported
H4	Insurance Literacy	Successful Task Completion	-0.1157	0.24565	-0.69	Not Supported

Note: * significant at 0.05 level;

Figure 4: Validated Research model



Note: * significant at 0.05 level;

Chapter 6: Discussion and Conclusions

6.1 Summary of Findings

This thesis aimed to investigate the effects that consumer's insurance literacy and cognitive script richness had on purchase performance behavior when consumers would subscribe to insurance in an online context. Moreover, this study's goal was to analyze the relationships between the factors of consumer's insurance literacy and cognitive script richness on purchase performance behavior which consisted of the time to complete the task and successful task completion. What the results showed was that the richer the cognitive script richness was, the lower the task completion time and successful task completion would be. Moreover, a higher insurance literacy would indicate a higher task completion time. Additionally, there was partial support for when one's insurance literacy would be higher, then the higher the task completion time would be.

This final chapter in this thesis gives a brief overview of the main insights that were found through the analysis of the hypotheses formulated. The main results and contributions section described in detail what each research question and hypotheses resulted in. The section that follows is the last section. It is the section that talks about the theoretical contributions, implications for managers and the potential limitations that our study possessed.

6.2 Discussion

With the advent of technology and the development of web interfaces to perform insurance tasks in an online setting, understanding how users would interact with the various elements involved in the process for shopping for insurance online was investigated. What this study examined was if the themes of cognitive script theory and insurance played an important role for users when interacting with insurance tasks online. In general, there were themes that were discovered relating to cognitive script theory having to do with the topics of education (De Oca & Nistor, 2014; Hayward et al., 2016), psychology (St. Amant, 2021; Volden & Johnston, 1999), business (Järvi et al., 2020; Leigh & Rethans, 1984; Gioia & Poole, 1984; Lord & Kernan, 1987;

NOUSKALI, 2019; Parker & Ward, 2000; Sánchez García, 2014), insurance (Ainscough, 1996; Alford, 1998), shopping (Jacobs & De Klerk, 2010; Leong et al., 1989; Stoltman el al., 1989) and HCI and UX (Dargent et al., 2019; Sénécal et al., 2012; Veilleux et al., 2020) which were shown to be relevant. Being more specific regarding the topic of online purchasing of insurance, existing research has touched upon the examination of the cognitive scripts and customer journeys of users who were shopping online for various products such as clothing items and digital music products (Jacobs & De Klerk, 2010; Sénécal et al., 2012). Moreover, the examination of cognitive scripts in relation to purchasing insurance online was not previously covered in literature and provided a new avenue of exploration that this study entailed.

Furthermore, as mentioned in the previous paragraph, insurance literacy also played a role when analyzing how users would interact when shopping online for insurance. In relation to insurance literacy, previous literature has covered insurance topics relating to auto insurance (Palas, 2014; Valentine & Khayum, 2005), life insurance (Alt et al., 2021; Dragos et al., 2020; Lin et al., 2017; Mare et al., 2019), health literacy (Edward et al., 2018; Parragh & Okrent, 2015) and health insurance literacy (Call et al., 2021; Kim et al., 2013), financial literacy (Fonseca et al., 2012; Fujiki, 2020; Kim et al., 2013; Lefrançois et al., 2017; Lin et al., 2019; Lusardi, 2008; Tennyson, 2011) personal insurance literacy (Driver et al., 2018; Weedige et al., 2019) and microinsurance literacy (Bonan et al., 2017; Lusardi & Mitchell, 2007; Uddin, 2017) was shown to be relevant. Being more specific with the topics of auto and life insurance, what was shown to be relevant was the user characteristics influencing the overall insurance literacy one would possess. Notably, in the auto insurance condition, the characteristics of age, area of residence, financial literacy, employment status, savings account and users' plan for their future were all characteristics that were shown to have a positive influence on one's insurance literacy. In the life condition, the characteristics that were positively influencing one's insurance literacy were financial literacy, marital status, urbanization, a user's individual experience when searching for life insurance, communication style, age, and children. The previous information relating to user characteristics helped us frame our hypotheses and research questions to see what specific characteristics of auto and life insurance we needed to look out for when measuring one's insurance literacy.

The research question mentioned in the first chapter (Introduction) addressed the themes of cognitive scripts and insurance literacy that were mentioned previously. As a reminder from Chapter One (1), the research question basically stated the following: “How do users’ cognitive scripts and insurance literacy affect users' insurance purchase performance?”. The research question formed the basis of the hypotheses that were outlined in this study. The results obtained for this study permitted to support or reject the hypotheses and ultimately answer the research question.

Firstly, when comparing the relationship between cognitive script theory and purchase performance behavior, it was shown that there were two (2) observations generated. The entire sample (n=42) pertaining to both the auto and life condition groups was used for this comparison. Here, what was shown was that the relationship between cognitive script richness and task completion time was completely supported. More specifically, the relationship of cognitive script richness and task completion time showed that the richer the cognitive script generated by users going through the insurance purchasing task, the users would complete the task faster and the overall task completion time would thus be lower. Additionally, the relationship between cognitive script richness and successful task completion was also analyzed and yielded another important result in our data analysis. What this resulted in was a partially supported relationship between these two (2) variables. Thus, when the user’s cognitive script which was generated by the task would increase, this resulted in a lower successful task completion rather than a higher one. The results shown here would deliver better insights on analyzing the richness of the cognitive scripts generated by users that would have an impact on performance in the insurance performance task.

Secondly, when comparing the relationship that insurance literacy had on the purchase performance behavior variables of overall task success and time to perform the experiment individually, there were two (2) results generated. The entire sample (n=42) pertaining to both the auto and life condition groups was used for this comparison. More specifically, what was shown when comparing the relationship of insurance literacy and task completion time, it was found that the higher the insurance literacy of users calculated by questionnaires at the end of the experimental task would result in users taking longer to complete the experimental task and thus

the overall task completion time would be higher. Additionally, the relationship between insurance literacy and successful task completion was analyzed but the relationship between these two (2) variables was shown to be non-significant. Moreover, there was no relationship between one insurance literacy and successful task completion.

6.3 Managerial Implications and Limitations

6.3.1 Managerial Implications

The above discussion points to several implications that would provide some important insights into the types of managerial implications that would be useful for managers. Moreover, it would be useful to analyze the differences between the auto and life conditions when dealing with the time it took to complete the online task. Additionally, since participants that were assigned to the auto condition completed the task faster than their life insurance counterparts it would be useful for managers to analyze the differences in the visual layouts on the websites. Examining and analyzing if the placement of certain elements on the website would make a difference in the time it took for users to navigate through the webpages would be a useful avenue to explore. Thus, taking a closer look at the User Experience (Veilleux et al., 2020) on the websites could potentially help managers improve their websites to help users improve efficiency when shopping for insurance online.

An additional implication that would be useful for managers would be potentially providing more insurance resources for their customers. This would in turn help users to better understand what the insurance they were signing up for entailed. By having a better understanding of what users were purchasing, this would in part increase their overall insurance literacy and make them perform online insurance tasks more efficiently.

6.3.2 Limitations

There were some limitations that might have interfered with our study. One (1) big limitation of this study was the fact that the entire data collection was conducted online in a remote format via the Lookback platform (*Lookback: Simple, powerful, user research*, n.d.). Unfortunately, due to the COVID-19 pandemic and multiple lockdowns in 2021, the entire study had to be conducted remotely due to the Tech3lab being closed. Poor or slow internet connection might have interfered with the participant results. Another reason for the study being conducted in a remote setting would be due to participants who were in our neighboring province of Ontario, and it would have been challenging to provide each participant transportation to come to the Tech3lab to participate in the study.

Additional insights could have been drawn if the data collection was conducted solely at the Tech3lab with tools such as the oculometry tool Tobii (Lalonde et al., 2015) which measured the cognitive load of participants using measurements of the diameter of their pupil (Lalonde et al., 2015) could be used. This tool was used in a previous study conducted at the lab when testing usability of a website and cognitive scripts and could have been used (Lalonde et al., 2015). Moreover, there was another study that was previously conducted at the Tech3lab that dealt with cognitive script theory and measured the scripts of consumers who were shopping online for digital products that used an Electroencephalography (EEG) to measure the brain activity of participants (Sénécal et al., 2012). If the participants would have been able to physically be present in the lab, then these tools could have been used to find other insights from the study.

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Appendix

Appendix 1. Overview of Operationalization of Research Variables

Construct	Operationalization of Construct	Source
Purchase Performance	• **SUCCESS_BIN:** In the insurance subscription task, overall success was determined by traversing through each of two (2) website paths included in the Auto condition or through the two (2) websites in the Life condition successfully. (1 = Success, 0 = Failure). **See Appendix 2:** Detailed description of Operationalization of Purchasing Performance Variables for more details on success criteria. • **COMPLETION_TIME:** Time to Perform is defined by the participants' time taken in seconds for the performance of the experiment, more specifically the time taken to perform the insurance subscription task.	The Performance Observation variables collected in our experiment.
Cognitive Script Richness	• **IF_THEN_CONDITIONAL_COUNT:** The mean count of the number of if-then conditional statements was contained in the experiment's participants' cognitive scripts within a judge group. A numerical real value number would arise from this variable.	Weedige, S. S., Ouyang, H., Gao, Y., & Liu, Y. (2019) & Sénécal et al. (2012)

Construct	Operationalization of Construct	Source
Cognitive Script Richness	• **OTHER_CONDITION_COUNT:** The mean count of the number of other conditional statements was contained in the experiment's participants' cognitive scripts within a judge group. Other conditional statements included the statements "I would", "I think", "I might", "I could" and the conjunction "and then". A numerical real value number would be the value of this variable. • **COGNITIVE_STEPS:** The mean count of the number of Cognitive Steps was contained in the cognitive scripts within a judge group. This was calculated by estimating the number of steps it took for the participant to go from an initial point to the final point in the process of purchasing insurance. A numerical real value number would be the value of this variable.	Weedige, S. S., Ouyang, H., Gao, Y., & Liu, Y. (2019) & Sénécal et al. (2012)
Perceived Insurance Literacy	• **INS_LITERACY:** The consumer's insurance literacy would measure the overall insurance literacy that a consumer possessed based on the results obtained from the post experience questionnaire. The total score was recorded by adding up the number of the responses generated from the 1 = Disagree and 2 = Agree values. The total score was an integer number possibly ranging from 11 to 21. A higher score	**Adapted from:** Weedige, S. S., Ouyang, H., Gao, Y., & Liu, Y. (2019)

Construct	Operationalization of Construct	Source
Perceived Insurance Literacy	indicated that someone had higher insurance literacy.	**Adapted from:** Weedige, S. S., Ouyang, H., Gao, Y., & Liu, Y. (2019)
Insurance Type	• **TYPE:** The condition of the type of insurance that a participant was assigned to was defined by the TYPE variable. There were two (2) categories of insurance notably auto insurance and life insurance.	The two (2) insurance types analyzed in our study

Appendix 2. Detailed description of Operationalization of Purchasing Performance Variables

Construct	Operationalization of Construct
Purchasing Performance	***User Submission Task Success:*** **SUCCESS_SITE1_LIFE: SUCCESS_SITE1_LIFE represents the success of traversing the DLI website as part of the insurance subscription task in the life insurance condition.** Reminder that the webpage consisted of a distribution channel involving customer representatives and this website was defined by the acronym "DLI" for this study. There were three (3) possible values which were either 0 (Fail), 0.5 (Partial Success) and 1 (Success). This type of variable was tested only for the Life condition. Success was defined when a user could purchase insurance directly on the website rather than with an agent. **SUCCESS_SITE2_LIFE: SUCCESS_SITE2_LIFE represents the success of traversing the DAN task as part of the chosen URL insurance subscription task in the life insurance condition.** Reminder that the webpage relating to retrieving insurance in a manner involving an agent distribution channel was defined by the acronym "DAN" for this study. There were three (3) possible values notably 0 (Fail), 0.5 (Partial Success) and 1 (Success). This type of variable was tested for the Life conditions. Success was defined by the ability of the participant to find an agent by themselves on the website. Only the DAN (Agent) website which involved the website distribution of insurance via agents would be considered for SUCCESS_SITE2_LIFE.

Construct	Operationalization of Construct
Purchasing Performance	***User Submission Task Success:*** **SUCCESS_SITE1_AUTO: SUCCESS_SITE1_AUTO represents the success of the DAN Path taken in the insurance subscription task in the auto insurance condition.** There were three (3) possible values notably 0 (Fail), 0.5 (Partial Success) and 1 (Success). This variable would represent the first possible PATH taken by the users in the auto condition in the insurance subscription task. This path would occur with DAN (Agent) being accessed first followed by DAN (Form). Reminder that DAN (Agent) would be a website containing an agent search page where a participant could select an agent and view their information to proceed to make an insurance submission. DAN (Form) consisted of a website containing a form to file an insurance submission and contained a help section on the bottom with an agent's contact information. **SUCCESS_SITE2_AUTO: SUCCESS_SITE2_AUTO represents the success of the DAN Path taken in the insurance subscription task in the auto insurance condition.** There were three (3) possible values notably 0 (Fail), 0.5 (Partial Success) and 1 (Success). This variable would represent the first possible PATH taken by the users in the auto condition in the insurance subscription task. This path would occur with DAN (Form) being accessed first followed by DAN (Agent). Reminder that DAN (Form) consisted of a website containing a form to file an insurance submission and contained a help section on the bottom with an agent's contact information. DAN (Agent) consisted of a website containing an agent search page where a participant could select an agent and view their information to proceed to make an insurance submission.