Searching for Simplicity:

Using Behavioral Science to make Life Insurance Product Information Simple and Effective

August | 2024

SOA Research INSTITUTE

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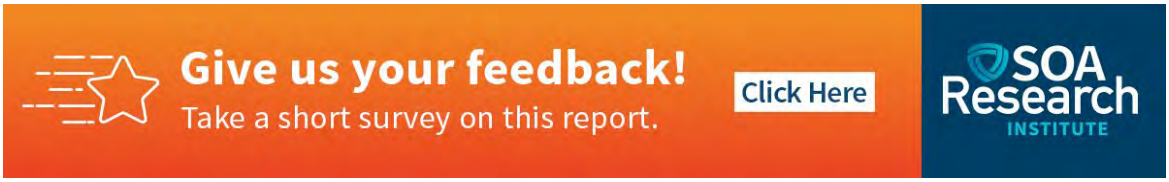

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Abstract

The research presented in this paper provides practical behavioral insights insurers can use to help narrow the customer comprehension gap of life insurance products and creates a direction for future industry research. The research shows that simplifying language and removing friction is not enough to improve comprehension: Increasing the salience of key information and using positive friction techniques has significantly greater impact.

We designed two experiments that recreated the online term life insurance purchase journey, recruiting participants residing in the U.S. The first experiment (N = 2,001) focused on improving comprehension of written messages used in the sales journey, and the second (N = 2,005) tested the impact of using both human- and AI-generated videos. We measured comprehension based on participants' ability to answer questions related to the digital journey.

Our work identified several ways comprehension can be improved utilizing behavioral science:

- Making information simple is necessary, but not sufficient for improving comprehension. Instead, it should be utilized in combination with other behavioral science techniques.
- Making information salient significantly improves overall comprehension of all content by 21%, and it increases to 40% when focusing on comprehension of content exclusively emphasized by techniques such as providing FAQs or attractive icons.
- Making information relevant significantly improves overall comprehension of all content by 28%, and it increases to 59% when focusing on comprehension of content that was presented via premium calculators or when asking more personal questions about beneficiaries.
- Presenting information in video format significantly improves comprehension by an additional 15%, but only when added along with the other behavioral science techniques above.

While our work identified opportunities for insurers to improve customer comprehension, additional work is needed to further narrow the comprehension gap.

Executive Summary

Background

Information about life insurance in sales journeys is too often complex and challenging for customers to understand. This is problematic for the industry, both in terms of growth (if customers cannot comprehend the value or features of insurance products, they may be less likely to purchase) and inclusion of individuals with lower levels of financial literacy.

The proportion of U.S. households covered by life insurance has steadily declined since the 1960s. The 2024 LIMRA Barometer shows that life insurance penetration dropped from 63% in 2011 to 51% in 2024.This trend is concerning for the future health of the individual life insurance industry, as it suggests consumers are failing to see the value that life insurance products offer.

One reason for the long-term and ongoing decline in sales may be the way in which life products are now sold. The rise of direct-to-consumer (D2C) sales promised to disrupt the market, but it is not clear whether D2C sales are as effective at reaching consumers as anticipated. One reason for the lack of success may relate to the complexity of life insurance products, which are often difficult to match to the unique needs of a policyholder without the help of a human sales agent.

The nature and complexity of the product will always be a barrier to life insurance sales. Indeed, if you asked a psychologist to design a product that is difficult to sell, it would look something like life insurance, which requires customers to first consider the consequences of their death, make tradeoffs involving payoffs that are often far in the future, and understand unfamiliar concepts and terminology, all in order to make a purchase decision. However, careful design and better communication with consumers can help bring order to the inherent complexity.

Behavioral science offers a range of solutions proven effective in other contexts that may be applied to improve customer comprehension of life insurance products. An interdisciplinary field that melds insights from areas such as psychology, economics, neuroscience, and sociology, behavioral science helps us understand how individuals process information, and so helps us craft solutions that can optimize how people make decisions. While behavioral science is not new to life insurance, most of its application has focused primarily in other areas such as underwriting. At the time of this report, there is little published research applying behavioral science to product development, despite it being one of the top three areas of interest reported in a recent SOA/SCOR industry survey (Bradfield *et al.*, 2024).

Behavioral scientists have determined a range of techniques that can be useful for improving comprehension of complex information. However, these techniques have not yet been studied extensively in an insurance context. The research presented here brings together evidence-based approaches and evaluates their effectiveness in a life insurance context.

Methods

In the studies presented in this paper, we designed two experiments that simulated online term life insurance purchasing journeys to test how certain behavioral science techniques could improve both comprehension of life insurance products and user experience. The first experiment focused on improving comprehension of written messages used in the sales journey, and the second tested the impact of using both human- and AI-generated videos.

Both experiments recruited participants residing in the U.S. and measured comprehension based on participants' ability to answer questions related to the digital journey.

We chose a term life insurance product because it is commonly sold online in the U.S., yet many of its concepts are challenging for customers to understand. Many of the comprehension-enhancing techniques we tested are also likely relevant to presenting information on other insurance products.

We tested these concepts in a simulated digital sales journey, as the digital channel is where the products are increasingly sold, but how comprehension of life insurance products and their value best translates into this journey is not yet well understood. While this experiment focused on a digital sales environment, in many cases the findings are also likely relevant to non-digital financial information. For example, how information is presented in paper documents can also be improved using many of the techniques studied here.

Results

Our work revealed that taking complex life insurance terminology and only simplifying it does not significantly improve comprehension. Instead, simple language must be used in combination with other behavioral science techniques. Specifically, we found that making information salient via frequently asked questions (FAQs) or utilizing icons and attractive text can significantly improve overall comprehension of all content by 21%. When examining only the content that was exclusively emphasized utilizing these techniques, comprehension increased by 40%. This finding demonstrates the importance of strategically utilizing techniques such as FAQs to present critical information, as this information is much more likely to be understood than other information on a site that is shown in plain text.

Our research also found that adding positive friction to the journey – that is, purposefully encouraging customers to engage deeply and deliberately with key information – significantly improves overall comprehension of all content by 28%. When measuring comprehension based solely on content specifically added to create positive friction, comprehension of this information rose to 59%. This finding contradicts the typical focus of customer journey design that attempts to speed people through the process by removing friction wherever possible. Instead, helping customers to engage with important but difficult-to-understand content by making it relevant for them significantly improves understanding of that content.

We also found that utilizing video as an additional way to make critical information more salient and engaging significantly improves comprehension. However, to garner further gains in comprehension, choosing the right messenger can provide additional uplift. For example, a speaker who is perceived as credible, expert, and sharing the same (or a similar) cultural background as the observer, correlates with higher levels of comprehension.

Because video production costs can have negative implications for scalability, we also examined whether AI avatars could be viable replacement messengers for their human counterparts. Initial results suggest that AI avatars are perceived as less credible, less likeable, and more unsettling than their human counterparts. While perceptions of AI avatars in videos were less positive than those for humans, comprehension levels were only slightly lower (5.5%) than when a human messenger delivers information. Given the speed and proliferation of AI technology, it is possible that AI messengers may in the future serve as a scalable alternative in customer journey design as they are further improved.

Lastly, while our work identified opportunities for insurers to improve customer comprehension, additional work is needed to further narrow the comprehension gap.

Section 1: The Comprehension Challenge in Life Insurance Journeys

Many people find life insurance complex. Even people classified as "financially literate" by globally vetted measures struggle to understand and apply insurance knowledge (Weedige, Ouyang, Gao, and Liu, 2019). This challenges life insurers to find ways to improve financial inclusion, comply with regulatory advice, ensure positive customer experiences, and grow the industry.

Life insurance sales in the U.S. have been on a steady decline since the 1960s (Hartley, Paulson, and Powers, 2017). In 1989, for example, 77% of households owned life insurance. Since then, the share has fallen to around 51% (LIMRA & Life Happens, 2024). This trend is concerning for the future of the individual life insurance industry, as it suggests consumers are failing to see the value that life insurance products offer.

The problem is not that life insurance lacks value for consumers. We in the industry know it solves problems many people face following the death of a loved one, such as paying a mortgage, affording funeral costs, and securing a family's financial stability. Nonetheless, the protection gap – the difference between the amount of insurance held by policyholders and the amount needed to sustain surviving families – was estimated to be $25 trillion in 2016 in the U.S. alone (Swiss Re Institute, 2018). Certain groups, including women, Hispanic and Black Americans, and millennials, are also more likely to be underinsured. This can be a significant opportunity for improving financial inclusion in populations and for market growth. For example, while six in ten Hispanic Americans do not have life insurance, more than half (53%) say they have a need (LIMRA & Life Happens, 2024), representing a coverage gap of 24 million individuals.

One reason for the ongoing decline in sales may be the way in which products are now sold. Traditionally, insurance agents and financial advisers were a vitally important piece of the life insurance sales journey. They can effectively explain the products' difficult concepts to customers, demonstrate the value, and help them make confident purchase decisions. Unfortunately, however, in most developed markets, the number of such agents and advisers is falling, and the average age of those remaining continues to increase (World Economic Forum, 2017). There is also a significant attrition issue, as 30% of new agents quit in 90 days, 90% are gone after three years, and 95% leave after five years (AgentMethods, 2024).

Insurers are instead turning to digital sales channels. Digital channels are often seen as beneficial because sales journeys can, in theory, be completed quickly, easily, and virtually. However, with no adviser to guide customers, digitally distributed products present two key challenges:

- The lack of face-to-face explanation can make it less likely that customers will understand the benefits of life insurance.
- The lack of an adviser can make it less likely that customers will comprehend the key terminology and concepts needed to make confident, informed decisions about protection.

The protection gap is a problem both for the insurance industry and society. To narrow the gap, a new approach to marketing and selling life insurance is needed – one that can demonstrate life insurance's value and illuminate its unfamiliar concepts to diverse audiences in digital and non-digital channels. To accomplish the goal of improving digital life insurance sales, insurers need a better understanding of how customers interact with information presented digitally, to capture their attention, improve their understanding, and effectively demonstrate the value of life insurance.

Section 2: A Behavioral Science Lens on Customer Comprehension

2.1 BACKGROUND: DEFINING BEHAVIORAL SCIENCE

This research utilizes the behavioral science discipline as a framework for examining the problem statement and presents tools and techniques stemming from this area. While applying behavioral science to life insurance is not new, there is little published research considering its impact on comprehension of life insurance products.

The terms "behavioral science" and "behavioral economics" are often used interchangeably within the industry, but they are not identical. Behavioral science is an umbrella term that encompasses a variety of disciplines, including psychology, sociology, and anthropology, while also focusing on the behavioral aspects of other disciplines such as biology and economics. The goal of behavioral science is to understand human cognition and behavior (Borja, 2023).

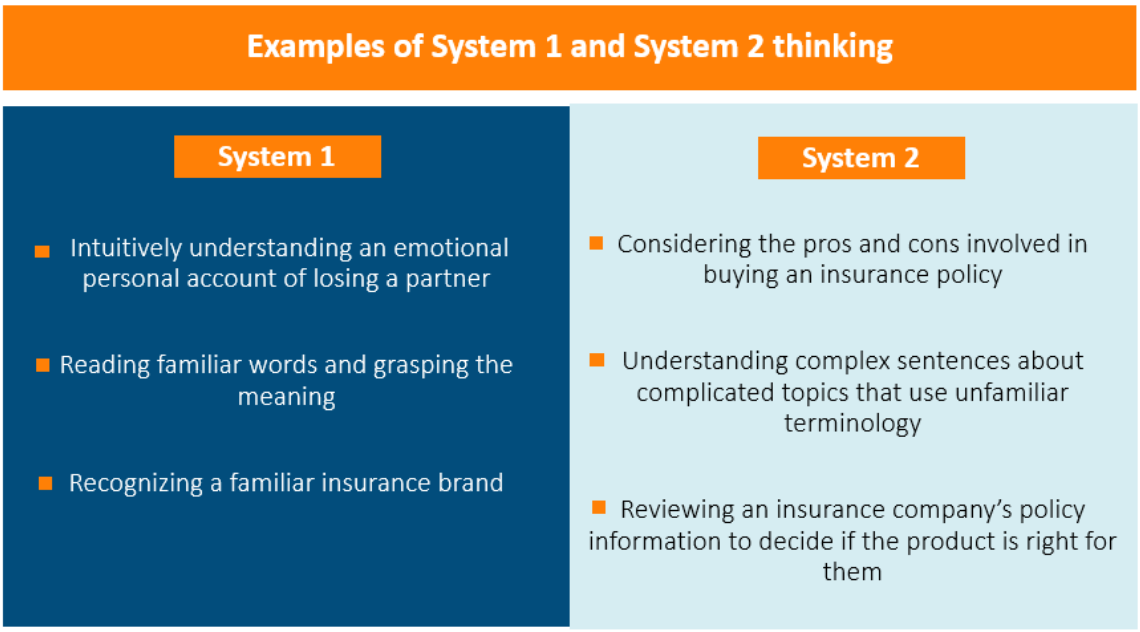
Behavioral economics is a narrower area of study that focuses on economic decision-making. Studies in this area show that humans are less rational than classical economic theory suggests. Behavioral economics is regarded as a sub-science of behavioral science as it uses methodologies typically derived and influenced by behavioral science, such as social psychology (FlexMR, 2020).

For our study, we are using the term "behavioral science," as we draw insights from a wide range of associated decision-making literature.

2.2 BEHAVIORAL SCIENCE AND CUSTOMER COMPREHENSION

Often, even if only implicitly, those of us working in insurance assume customers will interpret information about products as we would like them to, and that they understand the value we believe is inherent in our products. By understanding how customers process information provided by life insurers, we can improve insurance product comprehensibility.

Humans do not have infinite mental processing power (Wu *et al*., 2016). This means that the cognitive functions vital for comprehension, such as attention, memory, judgment, and decision-making, are not infinite in scope. Still, people successfully complete many daily tasks without a second thought. This is because, for many mental activities, humans use a fast, automatic, and even unconscious thought-processing mode, referred to by psychologists as "System 1" thinking (Kahneman, 2011). For tasks that require more mental effort, i.e., more deliberate and logical thought, such as calculations involving numbers or decisions involving tradeoffs, humans use a slower, more-considered thought processing mode, referred to as "System 2" thinking.



To simplify decisions, people often use mental shortcuts called **heuristics** (Tversky and Kahneman, 1974) in their System 1 thinking. For example, a person might decide whether to buy a product based on how the marketing makes them feel rather than by logically comparing the pros and cons of the product or might judge how likely an event is to occur based on how easily it springs to mind. This latter mode of thought is known as the **availability heuristic** and is one reason why humans tend to overestimate the risk of terrorist and shark attacks while underestimating the risk of road accidents.

Many of the challenging pieces of information that customers need to consider when deciding whether to purchase life insurance are likely candidates for heuristics. One misleading but commonly utilized information shortcut is conflating price with quality.

To improve comprehension, insurers would benefit from considering both System 1 and System 2 thinking when structuring customer sales journeys. By doing so, they can:

- Maximize the accuracy of customer judgments made by fast (System 1) thinking.
- Increase the likelihood and clarity of slow, well-reasoned (System 2) thinking at the right moments.

2.3 FAST-THINKING APPROACHES TO COMPREHENSION

Comprehension of complex information can be improved using a range of techniques that focus on making the information more engaging and intuitive. The sections below offer various techniques that have proven successful in a range of contexts. In our experiments, we were able to adapt and use most of these techniques to determine their impact on comprehension of term life insurance.

The approaches to comprehension we cover in this section have been grouped into these four categories: make it easy, make it timely, make it salient, and make it relevant. We utilize the same naming convention for the interventions we designed and tested. The interventions are detailed in two study design sections- one for each study.

2.3.1 MAKE IT EASY

2.3.1.1 Simplifying language and numbers

Most U.S. states impose a plain language requirement on insurance materials. This means "using language, structure, and design so clearly and effectively that the audience has the best possible chance of readily finding what they need, understanding it, and using it" (Cheek, 2010). Using colloquial rather than technical terminology is an important aspect of this.

Readability scores, such as the Flesch-Kincaide readability test, can provide a measure of ease of comprehensibility of content (Barczuk, 2015). However, simplification of language often yields the best results when done by skilled writers as opposed to using a readability test to tweak the language in order to obtain a desired score (Trapani and Walmsley, 1981). Even with the rise of AI technology in writing, it is best leveraged as a complementary tool for expert writers. While AI is an impressive generalist with a large base of knowledge across multiple domains, it struggles with the intricacies of specialized knowledge (Belmont, 2023).

Simplifying the way numbers are presented is also important for customer comprehension of complex materials in a range of fields, including life insurance (McGarry *et al.*, 2016) and healthcare (Peters *et al.*, 2006). There are known and effective techniques, such as displaying proportions as natural frequencies rather than percentages, for example, writing six out of 100 rather than 6% (Hoffrage *et al.*, 2000; Bertrand and Morse, 2011).

2.3.1.2 Structuring text

The ways in which text can be structured throughout a sales journey can also influence comprehension. Effective approaches include:

- Chunking, which refers to grouping types of information into convenient bite-sized pieces. For example, lengthy telephone and credit card numbers are typically organized into subgroups of three or four digits, which helps with recall. One study found that chunking information about bank savings accounts by presenting the images and textual explanations on one screen at a time increased customer engagement, understanding and, ultimately, purchase intent (The Behavioural Insights Team, 2018).

- Bullet points and checklists, to aid in explaining key points and benefits. These have been shown to be effective in motivating customers to respond to communications from financial institutions (Adams and Hunt, 2013) and, ultimately, increasing the amount of life insurance coverage purchased (Coe, Belbase, and Wu, 2016).

2.3.1.3 Using affect

The affect heuristic is a mental shortcut people use to make judgments based on the good or bad feelings they may have about a situation, rather than making a full appraisal of a situation's costs and benefits. For example, studies show that images and descriptions that present emotionally evocative stories about products may be a more effective sales tool than presenting detailed assessments of the benefits (Peters *et al.*, 2013).

Some approaches to harnessing affect to improve comprehension of life insurance include:

- Adding emotionally descriptive labels, such as "excellent" or "poor," to numerical risk information (Slovic and Peters, 2006). Similarly, explicitly demonstrating the emotional significance of a life insurance purchase (i.e., to protect a loved one's financial wellbeing) is likely to improve a customer's comprehension of its value.

- Presenting brief, engaging stories of how life insurance works in the real world. Storytelling is successfully used in medical communications – for example, presenting cancer prevention guidance using emotional stories rather than facts and figures. In one cancer prevention study, the authors found that storytelling

helped individuals identify with a message more, thereby increasing engagement (McQueen *et al*., 2011). Interestingly, women who were more engaged talked with friends and families more, which increased message recall. However, a recent study from LIMRA found that storytelling did not influence employee take-up of life insurance (Landry, 2023), possibly due to the negative emotions the cited story elicited.

2.3.2 MAKE IT TIMELY

- Timeliness of presenting information is known to be important in various settings, especially aligning it with the time a decision should be made. For example, in banking, signing up for text alerts instead of waiting for annual account summaries may help consumers avoid overdraft fees (Garavito, Hunt, and Kelly, 2015). For life insurers, defining key concepts at the points in the application journey when they are important to understand may be beneficial to achieving the sale.

- Taking advantage of primacy and recency effects, which refers to the human ability to have better recall of information presented at the beginning and end of documents (Murdock, 1962; Welch and Burnett, 1924), can also improve comprehension and sales.

2.3.3 MAKE IT SALIENT

Increasing the salience, or the likelihood of attracting people's attention, of key information is also important for overall comprehension. Various methods of improving salience have proven effective, such as:

- Imagery has been found to increase customer comprehension of car finance contracts (McElvaney, Lunn, and McGowan, 2018) and civil servants' comprehension of legal instructions (Passera, 2018).

- Layering, which refers to revealing key information at the top level of a webpage, while detail is provided in a deeper "layer," such as after the click of a help button. Layering has proven a successful technique for creating understandable privacy policies that are easier for readers to grasp (Kelley, Cesca, and Cranor, 2010).

- Summarizing complex information, or presenting the gist of an argument, has proven effective. One study found that presenting participants with a summary of a user license agreement was more effective at preventing them from downloading fictional spyware than giving them the actual (and lengthy) user license agreement (Ahern *et al*., 2007).

2.4 SLOW-THINKING APPROACHES TO COMPREHENSION

Although the focus when designing sales journeys is typically to speed people through the process by removing information where possible, in some circumstances encouraging customers to engage deeply and deliberately with key information is important. This is the concept of positive friction.

Research published by the University College London defines "positive friction" as design that "can disrupt mindless automatic interactions, prompting moments of reflection and more mindful interaction" (Cox and Gould, 2016). An example of this is the additional screens placed into digital banking websites from which customers make payments to ensure that payee details are correct. While this slows down the payment journey, it makes errors less likely, improving the journey for customers and accuracy for the bank.

Psychologists have also shown that engaging more deeply with information and enriching the information by integrating it with existing knowledge leads to better memory (Craik, 2002). Hence, slowing the sales journey by using positive friction techniques for key information to encourage deeper customer engagement and thought can improve recall and comprehension of the material's most important concepts.

2.4.1 MAKE IT RELEVANT

One way to encourage individuals to interact more deeply with information is to ensure that it is applicable to their experience. This can be accomplished through **personalization** of content.

An aspect of personalization directly applicable to the life insurance context is giving consumers more control and influence over how they interact with a product. Giving individuals more responsibility in how they engage and interact with content or information heightens their cognitive effort, resulting in higher learning (Deslauriers *et al.*, 2019). What "control" looks like in practice means allowing individuals to understand the terms and conditions of a product by introducing tools and aids such as sliding scales and calculators. As an example, the Australian Securities and Investment Commission created a switching mortgage calculator to help consumers take more ownership over this process (Marandola *et al.*, 2020). In another study, the Organisation for Economic Co-operation and Development (OECD) presented an online pension simulator in Chile, which allowed individuals to explore many of the assumptions and parameters of their contributions. While the study did not aim to measure comprehension, it was helpful in elucidating the various metrics and information that users preferred to access to help them make decisions about their pensions.

2.5 THE MESSENGER EFFECT: USING VIDEO AND ARTIFICIAL INTELLIGENCE TO ENHANCE COMPREHENSION

The final aspects of comprehension discussed in this research are the media channels through which information is delivered and the perceived identity of the messenger. These two aspects of communication are increasingly important for insurers to consider, given the recent and rapid evolution of how consumers view information (e.g., the proliferation of social media platforms) and how those changes influence the overall effectiveness of how that information is communicated.

2.5.1 THE RISE AND POWER OF VIDEO

In a digital environment, insurers have a wide choice of how to present messages. Video has become a highly important and familiar medium through which people (particularly younger individuals) consume information. As an example, TikTok had more than 1.5 billion monthly active users in 2023 and is projected to reach 1.8 billion by the end of 2024 (Iqbal, 2024), with the average user spending 52 minutes a day watching TikTok videos (Woodward, 2024). TikTok users are also 1.8 times more likely to agree that the platform introduces them to new topics they did not even know they liked (Sweeney, 2024), and a quarter of U.S. adults under age 30 regularly get their news on TikTok (Chavda, 2024). A survey by LendingTree found that 41% of Gen Z report using TikTok for investment information (Putnam Investments, 2021). Financial advisers have sought to capitalize on TikTok's user base, with 21% of advisers opting to use the platform for their business (Putnam Investments, 2021).

Not only is the popularity of video streaming services with consumers high and growing, but it may also be a more effective way for consumers to receive certain messages than written text. Digital marketers often state that "people process visuals 60,000 times faster than text" (Harley, 2001). Although this may be an exaggeration, visual information is a highly effective way to deliver messages and, according to other research, people process visual information about 6 to 600 times faster than information presented as text (Hauk *et al.*, 2006).

Video is used effectively across various industries. For example, one marketing study found that viewers retain 95% of a message presented in a video compared to 10% of a message in text conveying the same material (Insivia, 2023). Similarly, in public health research, video-based health interventions have been found to have longer effectiveness than text-based interventions (Cheung *et al.*, 2017). In this study, educational content was delivered by actors relaying the same information in a video that was delivered via text in the text-based intervention. The authors found that people who watched the video version of the intervention recalled information more readily than those who received the same information presented as text (Yadav *et al.*, 2011).

2.5.2 THE MESSENGER EFFECT

With video being a strong option for delivering messages, insurers must decide which type of person would be the best option for delivering the message. According to several researchers, how humans perceive the credibility, expertise, likability, or authority of the person delivering a message influences how the message is interpreted (Cialdini, 2001; Marandola *et al.*, 2020; Wilson and Sherrell, 1993). This is referred to as the "**messenger effect**." "Hard" messengers who appear more knowledgeable may be more persuasive, but "soft" messengers may appear more approachable and are more likely to be listened to because audiences feel more connected to them (Martin and Marks, 2019). A viewer may also feel a connection with a messenger based on characteristics such as perceived similarity and trustworthiness.

This messenger effect was used widely and effectively during the COVID-19 pandemic. In countries around the world, local officials and community and religious leaders were used to convey messages to combat the population's vaccine hesitancy and boost trust and confidence in the advice.

Unfortunately, evidence to date that the messenger effect improves comprehension of financial information is mixed (Marandola *et al.*, 2020; Elshout *et al.*, 2016). One concern is that the increasing trust in a messenger may make individuals less likely to feel they need to pay close attention to the information shared because trusting the messenger to make the right decision on the customer's behalf serves as an information shortcut. We explored this issue in our research.

2.5.3 A NEW KIND OF DIGITAL MESSENGER: ARTIFICIAL INTELLIGENCE

Increasingly, videos are being narrated by computer-generated avatars rather than by actual humans. Artificial intelligence (AI)-generated messengers have been shown to be successful in communicating messages related to advertising (Miller *et al.*, 2023), wellbeing (Rubin *et al.*, 2022), medical training (Andrade *et al.*, 2010), customer service (Wang and Fodness, 2010), and psychological therapy (Fitzpatrick, Darcy, and Vierhile, 2017).

AI video messengers have key advantages over human ones. They are cheaper to use, increasingly easy and quick to create, and can be tailored easily to a specific role. Some viewers even prefer the anonymity AI messengers offer, as they can interact with the avatar and disclose sensitive information without feeling the shame and embarrassment they might feel when interacting with a real person (Lucas *et al.*, 2014, 2017).

Research to date is showing that humanlike avatars tend to be seen as trusted, competent, and warm (Kim and Hur, 2023; Konya-Baumbach, Biller, and von Janda, 2023) and have also been shown to increase purchase intentions (Chen, Le, and Florence, 2021; Go and Sundar, 2019; Konya-Baumbach, Biller, and von Janda, 2023; Sidlauskiene, Joye, and Auruskeviciene, 2023). A range of factors contributing to these impressions include the messenger's appearance (Ciechanowski *et al.*, 2019), name (Araujo, 2020), and speech patterns (Sidlauskiene, Joye, and Auruskeviciene, 2023), all of which are important for this perception. Recent research has also demonstrated the importance of likeness pertaining to representation in television ads. Specifically, minority representation depicted in mortgage refinancing ads resulted in an increase in **advertising elasticity** – that is, effectiveness in generating new sales – by 14% (Basiouny, 2024). While this research is specific to human-centered ads, if AI avatars can solicit similar feelings of representation among consumers, this could further narrow the knowledge and life insurance ownership gap among underrepresented groups.

Overall, the interaction quality with AI beings is similar to that achieved with human messengers (Miller *et al.*, 2023). However, the well-known **uncanny valley** effect, which refers to the eerie feeling people experience when humanlike robots or avatars closely resemble humans in many respects but are not quite convincingly realistic, could make interacting with AI beings less effective (Gillis, 2024).

Our research explored whether AI-generated avatars could become effective messengers for life insurance information.

Section 3: Our Approach to Examining Comprehension of Life Insurance Products and their Value

3.1 METHODOLOGY

In this study, we used two experiments that simulated online term life insurance purchase journeys to test how certain behavioral science techniques could improve comprehension and user experience.

We used a simulated term life product because it is frequently sold online in the U.S. market, yet many of its concepts are challenging for customers to understand. We also validated focusing on this product for the study with the Society of Actuaries' Project Oversight Group (SOA POG). Many of the comprehension-enhancing techniques we tested are likely relevant to presenting information on other insurance products.

We tested these comprehension-enhancing techniques in a simulated digital journey, as this is where the products are increasingly sold, but it is not yet well understood how comprehension of life insurance products and their value best translates into this journey. Digital is also a framework that is testable with online experiments and, in many cases, the techniques tested are also likely relevant to non-digital information. For example, how information is presented in paper documents can also be improved using many of the techniques studied here, such as chunking and affect.

Our experiments explored whether:

- Using fast-thinking techniques that make information more intuitive would improve customer comprehension.
- Using slow thinking tactically to encourage engagement would improve customer comprehension.
- These techniques would improve customer comprehension for those with low financial literacy.
- Presenting long-form information was more effective via video, and whether AI-generated video was any less effective than having the same information presented by a human.
- The perceived characteristics of the video messengers would influence comprehension. Examples of characteristics examined include likeability, personality, and attractiveness.

3.1.1 RANDOMIZED CONTROL TRIALS

Both experiments were conducted as online randomized control trials (RCTs) to determine the best way to present information and improve comprehension of term life insurance information. While no study on its own can prove causality, randomization reduces bias and is a rigorous tool for examining the cause-effect relationship between an intervention (website version in our case) and an outcome (e.g., comprehension). Randomization balances both observed and unobserved participant characteristics between groups such that any differences observed in the outcome can be directly attributed to the intervention being tested (Hariton and Locascio, 2018).

The successful design of RCTs requires careful attention to how the population is selected, the interventions that will be compared, and the outcome of interest. Once these parameters are defined, the number of participants required to reliably determine whether the relationships identified exist needs to be assessed via power calculation (see subsection 3.3 on sample size). Lastly, it is important that at the time participants are recruited, researchers are unaware to which intervention each participant is being allocated to further minimize bias. For this study, we used the survey platform Qualtrics to build the survey, recruit, and randomize participants to each condition.

Given how crucial it is that randomization is implemented correctly to reap the benefits of this method, we ran multiple "soft launches" for each experiment, stopping data collection once 50, 100, and then 200 surveys were completed. At each point, we examined the distribution of observable characteristics (e.g., demographics) across each condition. Upon completion of the soft launches and examinations, the remainder of the surveys were launched until 2,000 participants per experiment was reached. The experiments were launched sequentially, as the results from the first experiment determined the design and interventions tested in the second experiment.

3.1.2 STUDY PARTICIPANTS

Participants were not informed about the purpose of the experiments. Instead, they were instructed to review the website from the perspective of a consumer. Participation in the experiment was voluntary, and participants could exit the experiment at any stage. Participants who completed the experiment were compensated for their time.

Participants were allowed to begin the survey if they met two requirements. First, individuals had to agree to the consent form presented, which summarized (at a high level) the aims of the study and how their data would be used. Next, individuals had to answer demographic questions about age, sex, race, ethnicity, income, and region to meet the sample quota requirements designated for each experiment.

In partnership with Qualtrics, we aimed to collect two nationally representative samples of 2,000 participants for each respective experiment. To guard against unfair learning, participants who took part in the first experiment were ineligible to take part in the second experiment. While we were able to achieve a nationally representative sample for the first experiment, we had to relax sample quota requirements for the second experiment due to sample collection taking much longer than anticipated. The demographic distributions for each experiment can be found in Appendix B.

There were two main contributions to the challenges experienced in achieving two nationally representative samples. First, reaching racial and ethnic minorities, older ages, and higher income brackets was difficult, but this is an expected challenge in most surveys aiming to achieve a nationally representative sample. The second challenge arose because of the high proportion of participants failing the manipulation checks included in the survey.

Manipulation checks (or attention checks) are encouraged in experimental studies, but there is often hesitancy to use them because it can be unclear which ones to use and whether they can potentially impact experimental findings. However, simulation studies have shown that factual manipulation checks (FMCs), which are objective questions about key aspects of an experiment, can identify individual-level attentiveness to experimental information and, therefore, better enable researchers to diagnose experimental findings (Kane and Barabas, 2018). There is also little evidence that FMCs affect the intervention effects (Kane and Barabas, 2018). The manipulation check questions used in this study can be found in Appendix A.

3.1.3 STUDY DESIGN

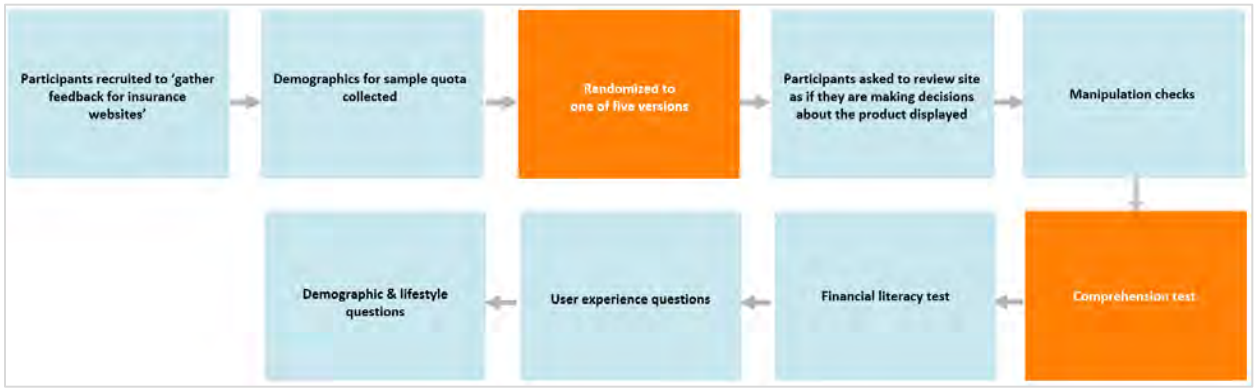
3.1.3.1 Study flow

The overall study experience for each experiment proceeded as follows. Once respondents passed the screening portion of the survey, they were provided a summary of how the survey would progress. First, we provided a high-level overview for the website they would review and were instructed to browse as if they were intending to purchase the product presented. Next, they were randomly assigned to one of the five websites created for the experiment. After viewing their assigned website, participants were given three manipulation-check questions to ensure they reviewed the website. Participants who did not answer all three questions correctly were not eligible to continue the survey.

Participants who passed the manipulation checks were then presented with 15 multiple choice questions about term life insurance to measure comprehension, followed by a three-question financial literacy test. Last, they were

asked a few questions about their experience, and additional lifestyle and demographic information was collected. Figure 1 provides a summary of the entire process.

Figure 1
STUDY FLOW



3.1.3.2 Measuring comprehension

In partnership with the SOA POG, the concept of comprehension was operationalized by constructing 15 multiple choice questions to measure how well participants understood the information presented on the website they viewed. An example question is presented below, and the full list of questions can be viewed in Appendix A.

If you were to buy this policy, would you need to take a medical examination?

a) *Yes, every customer is required to have an examination*

b) *No, no customers are ever required to have an examination*

c) *Yes, in some circumstances an examination may be required*

d) *The information is not given*

3.1.3.3 Measuring financial literacy

Financial literacy (FL) is defined as ‘‘a combination of awareness, knowledge, skill, attitude, and behavior necessary to make sound financial decisions and ultimately achieve individual financial well-being (OECD/INFE, 2011).” Research has demonstrated that FL is positively associated with increased demand for life insurance (Pitthan and De Witte, 2021). However, improved financial decision-making resulting from FL gains can be stymied by cognitive biases and system 1 thought processes (Garcia, 2013), especially when given low quality information (Altman, 2012). As a result, we were interested in understanding if and how financial literacy impacted comprehension.

Participants' financial literacy was measured by having respondents answer the questions that constitute the "Big Three" financial literacy test (Lusardi and Mitchell, 2008). We have included one example question below and the rest are available in Appendix A.

Example financial literacy question:

Suppose you had $100 in a savings account, and the interest rate was 2% per year. After 5 years, how much do you think you would have in the account if you left the money to grow?

a) *More than $102*

b) *Exactly $102*

c) *Less than $102*

d) *Do not know*

e) *Refuse to answer*

3.1.3.4 Prototype website development

We utilized the web design tool, Figma, to develop the website prototypes, and a company logo generator to come up with the name "Got Vita" and its branding, so that it would seem like a realistic life insurance brand. We also ensured that Got Vita was not in use for any product at the time of this experiment.

An important aspect of the study was to develop a plausible generic insurance website that reflected the type of content a consumer would typically expect to see to test whether we could use behavioral science techniques to improve upon that version. We browsed 10 insurance websites to get a sense of how term life insurance information is currently presented and explained and came up with the control website prototype with input from the SOA POG. All the website prototypes developed were reviewed by the researchers in collaboration with the SOA POG to ensure they worked across various devices and browsers.

3.2 ANALYSIS APPROACH

For each experiment, the analysis was divided into two separate sections: a primary and secondary analysis. Our main objective was to understand the impact of behavioral science techniques on overall comprehension of term life insurance and its value. The key findings for that primary outcome are examined in each primary analysis section.

When our primary analysis led us to explore additional secondary questions that were prompted by the main set of findings, for example, measuring the impact of financial literacy on comprehension, we labeled this our secondary analysis.

We delineated between these two streams of analysis as an important guard against finding false positives. That is, the more comparisons are made in any analysis, the more likely you are to uncover statistically significant relationships due to chance alone (Harrell, 2017). Therefore, we suggest that the findings presented in the secondary analysis sections be viewed as exploratory and should be studied further in the future.

An additional method we employ to safeguard against spuriousness (i.e., minimizing false positives) is balancing the factors that can potentially confound the results. As mentioned earlier, RCTs allow for the measurement of causal relationships because they can retrieve an "unbiased estimate of the average effect of a treatment (Kraus, 2021)." However, for causal inferences to be made, the randomization of participants into groups needs to be executed properly. One way to check whether the randomization worked is to determine if all confounding factors (e.g., demographics) are balanced across control and intervention groups. We checked the balance of all demographic information collected and, in cases where any statistically significant differences were identified between groups assigned to the control website and the other website versions ($p < .05$), those variables were added as control factors. Balance tables can be found in Appendix C.

For additional robustness of our primary analyses, we utilized the Bonferroni correction method to counteract the multiple comparisons problem (Harrell, 2017). While various statistical techniques are available for guarding against false positives, we chose this technique because it's easy to apply and understand. Although it is critiqued for being too conservative, given that we were not conducting many statistical tests, it worked well for our purpose. We elected to only apply this correction to our primary analyses as those contained our main area of interest.

3.3 SAMPLE SIZE

Researchers typically use univariate analysis to estimate the sample size needed to detect statistical significance in experiments. This approach works well in randomized controlled trials because randomization will, on average, eliminate confounding effects that arise from covariate imbalances across treatment and control groups.

However, this study is interested in modeling the impact of both causal and correlational variables on comprehension. As a result, the analysis proposed is no longer univariate in nature, so a power calculation is not feasible.

There are various statistical approaches for determining the sample size needed to conduct multivariate analyses. In some cases, calculations require information about each of the model's variables, which would be extremely difficult to acquire given the limited amount of evidence that intersects the various domains presented in this paper.

Jenkins (2020) put forth the minimum sample size required for analyzing linear and quadratic effects via regression analysis. He found that the variance in the sample was more critical for determining sample size than the magnitude of the effect. He proposed that a minimum sample size of N = 8 could produce stable results in low variance, while high variance would require N ≥ 25. However, his work was limited to the inclusion of only one variable in the model.

Published work that most closely resembles this study is the RCTs published by Plain Numbers (2021). Figure 2 below provides a summary of the results from the white paper. The differences in the proportion of questions answered correctly across the treatment and control groups over the five trials range from 6% to 26%. In addition, their measurement of comprehension was modeled using logistic regression, which we did not use.

Combining minimum sample size requirements proposed by Jenkins (2020) and using the research published by Plain Numbers, this study opted to maximize the amount of sample per website version that was deemed financially reasonable by RGA. Therefore, the aim was to recruit 400 participants per condition, resulting in a total of 2,000 respondents. The final sample provided by Qualtrics for analysis was 2,001 for the first experiment, and 2,005 for the second. The additional responses collected once the 2,000 threshold was reached resulted from those surveys being completed as the survey link was being turned off. We decided to retain the additional responses for analysis.

Figure 2

THE EFFECT OF THE "PLAIN NUMBERS" APPROACH ON COMPREHENSION

Plain Numbers Studies				
	Treatment	Control	Difference	Sample Size
Trial 1: ClearScore	40%	19%	21%	1,000
Trial 2: Atlanta	61%	35%	26%	1,000
Trial 3: Octopus Energy	57%	32%	25%	1,000
Trial 4: Direct Line	30%	24%	6%	1,000
Trial 5: Thames Water	48%	13%	35%	1,000

Section 4: Experiment 1: Exploring Communication Simplification Techniques throughout the Digital Journey

In our first experiment, we used a simulated digital term life insurance journey to test techniques for engaging users and simplifying information to improve comprehension and user experience.

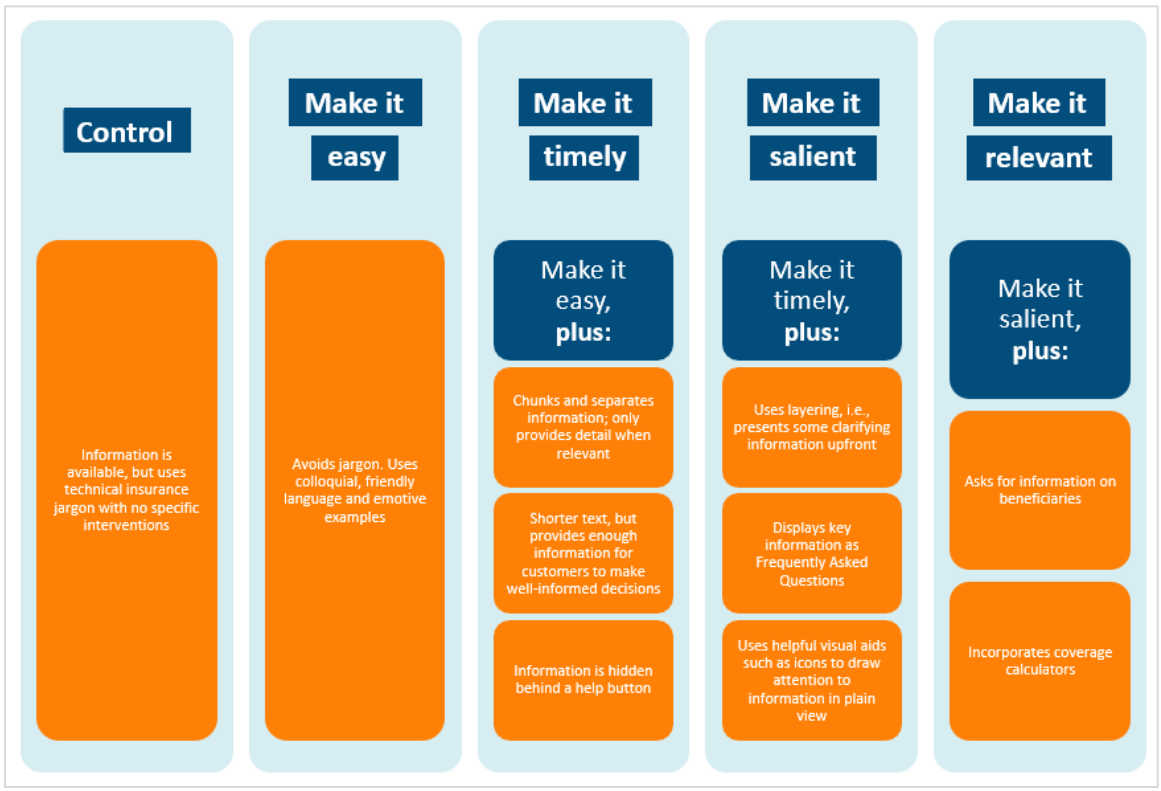
Researchers have found a range of techniques to be useful for improving comprehension of complex information. However, these techniques have not yet been studied extensively in an insurance context.

4.1 EXPERIMENT DESIGN

We created five prototypes of a term life insurance sales journey (Figure 3). Each version was designed to test various behavioral science techniques which have worked in different contexts. We approached this by providing the similar content in each of the versions, but the ways in which content was phrased, presented, and the examples used differed. A description of how information was presented in each version can be found in Figure 3.

Figure 3

DESCRIPTION OF THE FIVE PROTOTYPE WEBSITES DESIGNED



4.2 EXPERIMENT PARTICIPANTS

We recruited a sample of 2,001 people, which represented the U.S. population demographically. We measured participants' financial literacy (FL) to understand whether comprehension techniques could reduce comprehension disadvantages for those with lower levels of FL. For additional details regarding the participants in this study, please review subsection 3.1.2 on study participants.

4.3 CREATING A DIGITAL JOURNEY

Figure 4

DESCRIPTION OF DIGITAL JOURNEY FOR EACH WEBSITE PROTOTYPE

This figure provides a summary of the entire website flow presented to experiment participants. Depending on the version they were assigned, in some instances, they viewed only a subset of these pages.

4.4 FAST- AND SLOW-THINKING BEHAVIORAL APPROACHES TESTED

4.4.1 CONTROL PROTOTYPE

We first created a version of the website which did not use any of the comprehension techniques tested in the other versions. Many existing life insurance journeys lack the interventional techniques studied here to improve customer comprehension.

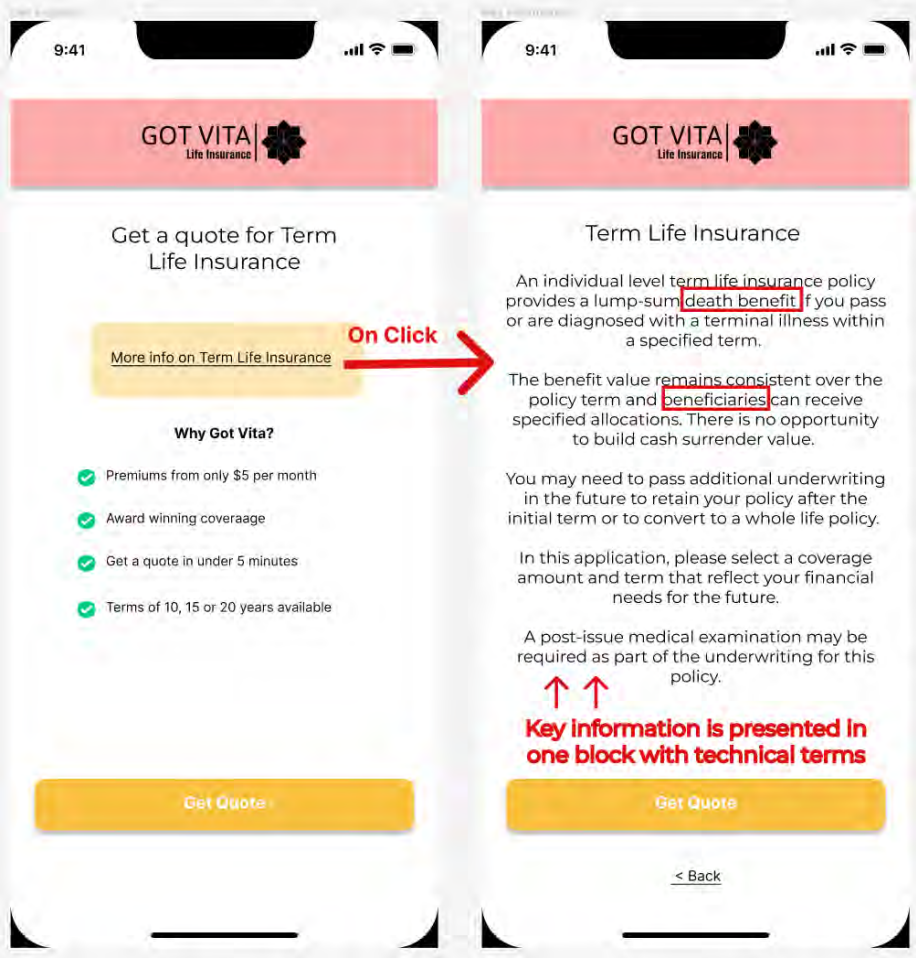
In this case, the control prototype was a deliberate example of poor practice but still a realistic example, which allowed us to measure the effect of using behavioral science techniques employed in the other prototype versions.

The key features of the control prototype were:

- The language used was technical and included jargon.
- Key information was presented in a single block toward the beginning of the journey.
- Key information required that a "help" button be clicked to view.
- No attempts were made to use positive friction techniques that would force engagement with the material.

- No additional visuals were used to catch users' attention.
- No narrative examples were used to improve engagement.
- No emotive language was used to help build participants' intuitive understanding of the value of life insurance.

Figure 5
SCREEN FROM THE CONTROL PROTOTYPE[1]



The language used was technical, unemotional, presented as one block at the beginning and end of the journey, and did not use images or require the user to engage deeply with key aspects.

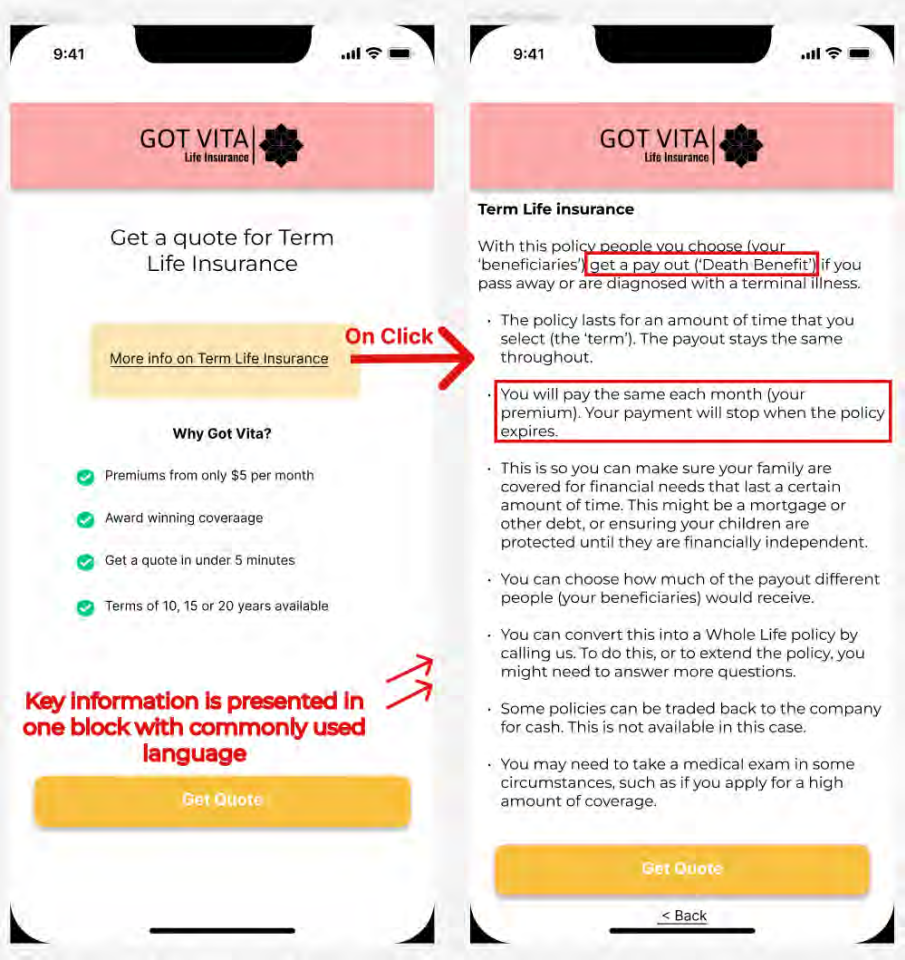
[1] The name "Got Vita" was created for the sole purpose of these test websites. As of the date of this publication, this name is not related to any real-life insurance company.

4.4.2 MAKE IT EASY PROTOTYPE

The second version was identical to the control version in terms of how the information was structured and presented. The only differences were:

- **Simplified:** The language used was simplified. Technical terms were defined clearly. Bullet points were used to break up text.
- **Affect:** The description of the benefits drew attention to the emotional aspects of purchasing life insurance to encourage comprehension of the product's value.

Figure 6
SCREEN FROM THE MAKE IT EASY PROTOYPE



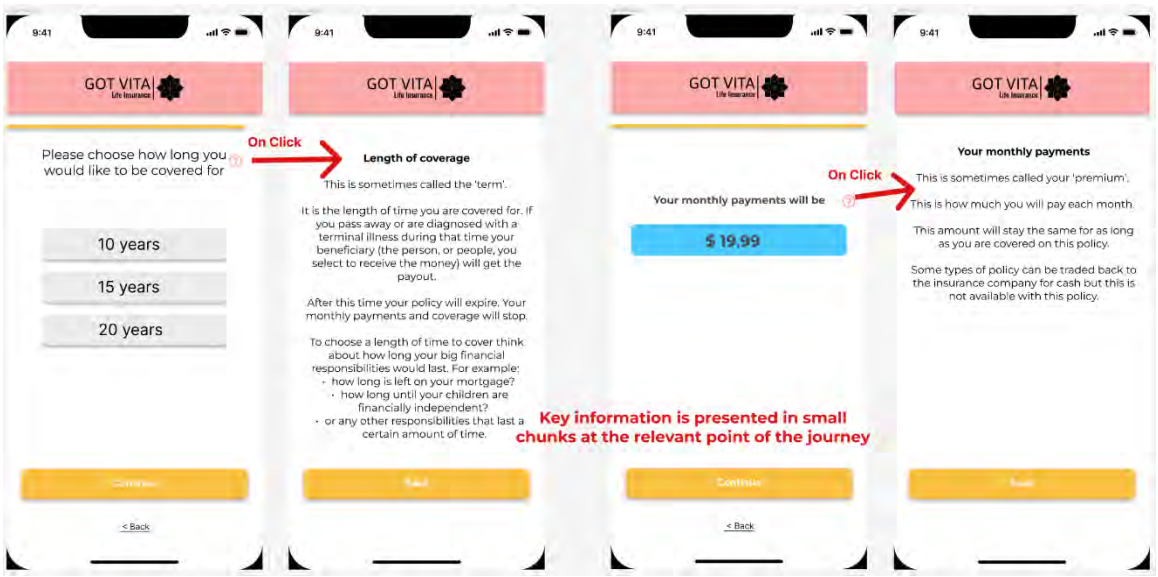
The make it easy prototype was identical in structure to the control version, but technical terminology was explained or replaced with commonly used language. Descriptions highlighted the emotional aspects of purchasing life insurance.

4.4.3 MAKE IT TIMELY PROTOTYPE

Our third iteration built upon the simplified language prototype, but used additional techniques to improve the structure of the information provided:

- **Chunking:** The information was split into smaller, digestible pieces that would be easier to process and remember.
- **Timeliness:** Each chunk of information was delivered at the relevant point in the journey, rather than in one block at the beginning or end. For example, the explanation of what a premium means was provided when the premium payments were presented.

Figure 7
SCREEN FROM THE MAKE IT TIMELY PROTOTYPE



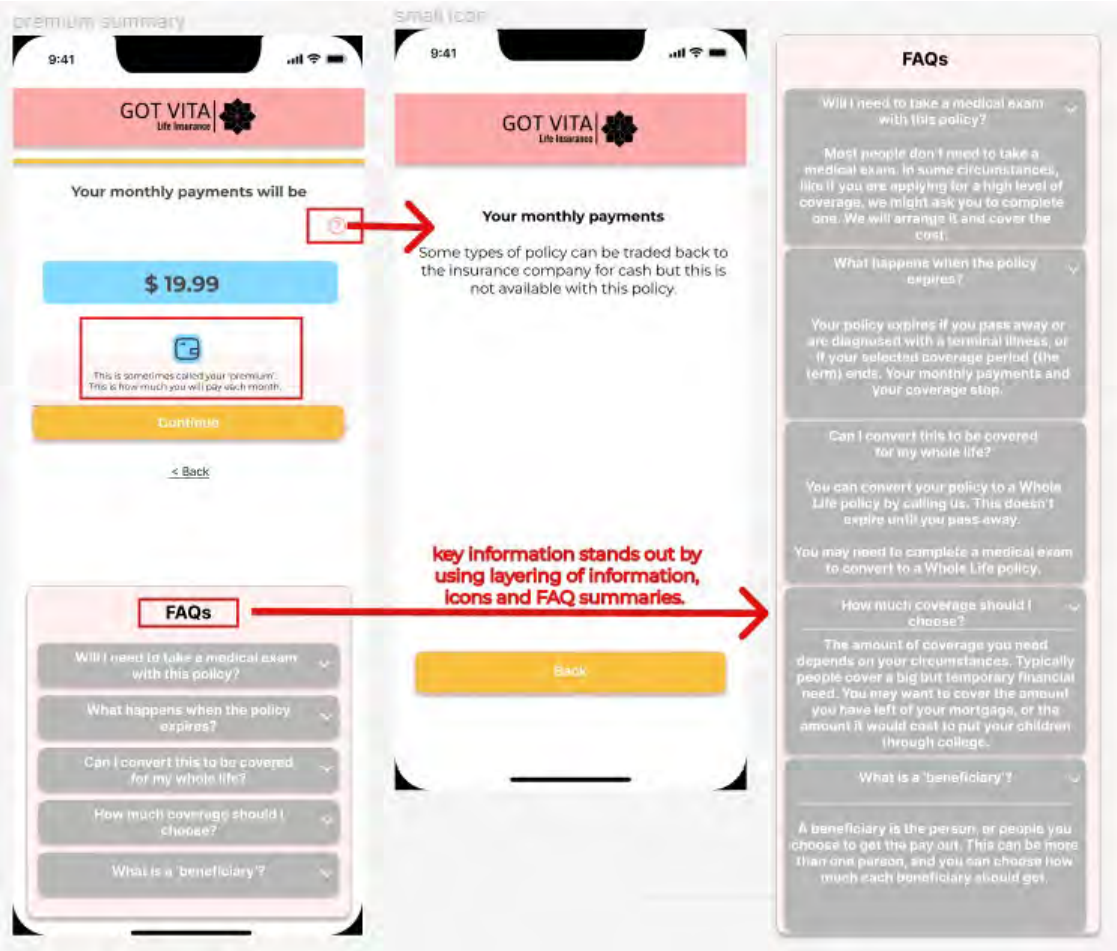
The make it timely prototype delivered information in smaller chunks at the point in the journey when users most needed to make decisions.

4.4.4 MAKE IT SALIENT PROTOTYPE

The fourth iteration used the same techniques as the make it relevant prototype, but used additional techniques to make the information more salient (accessible in people's attention):

- **Layering:** Key concepts were described up front on the top layer of the interface, and additional detail was provided behind accordion menus that revealed more detail when clicked.
- **Summaries:** "Frequently asked questions" labeled the key points a customer should know about the policy and provided relevant, digestible detail.
- **Images:** Small icon-style images were used to draw users' attention to key concepts and were visible in plain view instead of requiring a click to reveal.

Figure 8
SCREEN FROM THE MAKE IT SALIENT PROTOTYPE



The make it salient prototype was designed to make key details stand out in users' attention, using layering of information, icons, and FAQ summaries.

4.4.5 MAKE IT RELEVANT PROTOTYPE

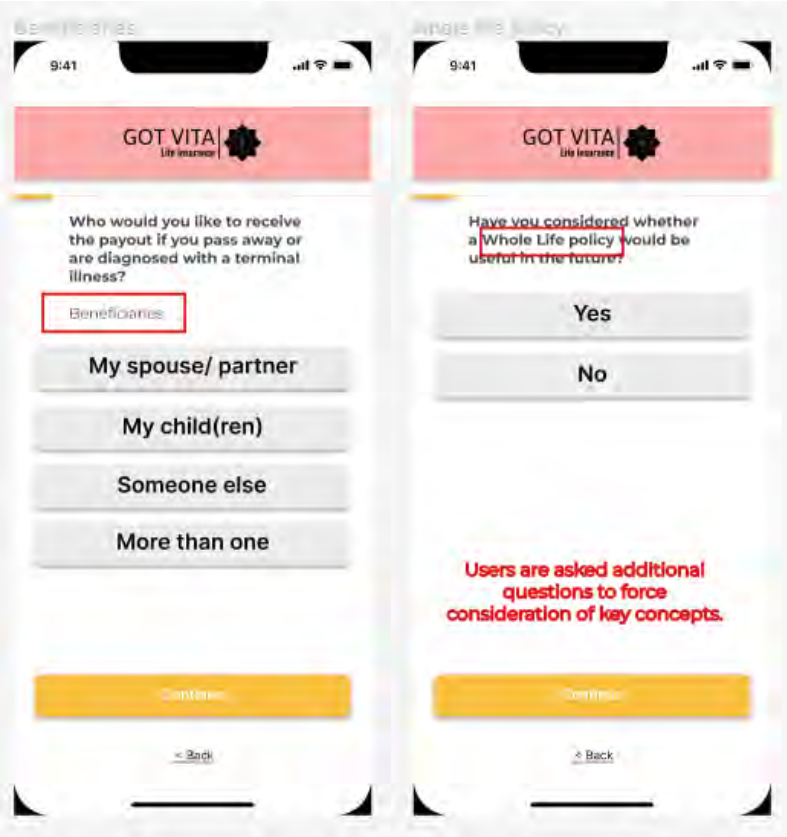
The final prototype employed all the previous techniques but was also designed to encourage deeper thinking about the key concepts. To do so, we used several positive friction techniques:

- Questions: Asking participants additional questions was done to force consideration of key concepts. For example, we asked questions about the identities of beneficiaries rather than just defining the word "beneficiary." We also asked whether the user had considered whole life cover, followed by defining the circumstances in which it would be useful. This encouraged participants to consider the differences between term and whole life policies.

- Needs calculator: We asked users several questions accompanied by a description of why the responses were important in assessing the need for insurance. For example, asking how much the customer had left to pay on a mortgage, loans, or other financial commitments ensured that they took into consideration that covering these debts was a key goal of a term policy.

Figure 9

SCREEN FROM THE MAKE IT RELEVANT PROTOTYPE



The make it relevant prototype asked users questions about key details and then provided further information to force the users to engage with key aspects of the journey.

4.5 RESULTS

4.5.1 PRIMARY ANALYSIS

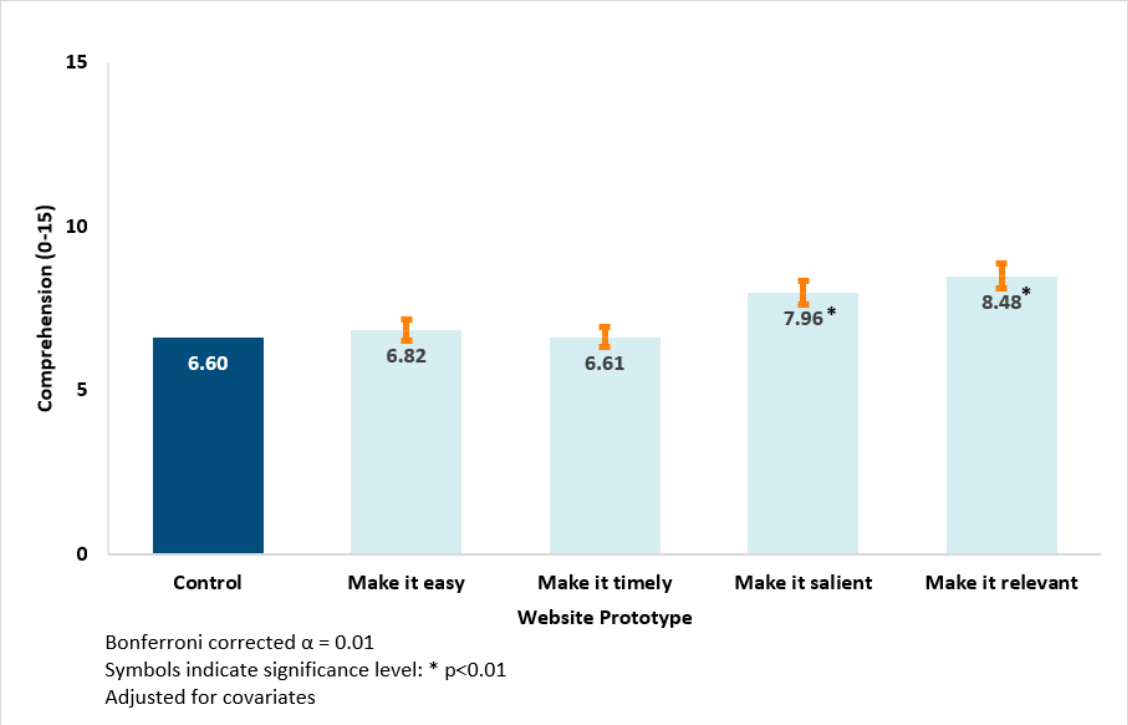
4.5.1.1 Overall comprehension

The make it salient and make it relevant interventions increased comprehension scores by 21% and 28%, respectively, compared with the control. These results were statistically significant. The make it easy intervention, however, increased participants' comprehension scores by 3% compared with the control, while the make it timely intervention increased comprehension by only 0.2%. These results were not statistically significant.

Figure 10 shows the average number of correct answers to the comprehension questions for the control and intervention groups.[2]

Figure 10

ESTIMATES FOR PRIMARY OUTCOME IN EXPERIMENT 1, OVERALL COMPREHENSION (MEASURED BY NUMBER OF CORRECT ANSWERS TO 15 MULTIPLE-CHOICE QUESTIONS)



[2] For all graphs in this report, the error bars show the 95% confidence interval of the difference between each intervention (the light blue bars) and the control condition (the dark blue bar). These differences were estimated using linear regressions with robust standard errors controlling for the demographic characteristics that were imbalanced across the conditions.

4.5.1.2 Comprehension of behaviorally enhanced content

The comprehension test was constructed to measure overall understanding of life insurance concepts and terms throughout the entire digital journey. As a result, even though we were measuring the impact of salience on comprehension in the make it salient intervention, not every piece of information presented was salient. Similarly, while the make it relevant intervention created a few additional points of interaction in the digital journey, the entire journey was not interactive.

We were interested in understanding if the information that was made more salient or interactive increased understanding of that specific information but reduced attention and, therefore, understanding of the information that was not made prominent. To test this, we separately measured comprehension of the information that was displayed in FAQs, by icon cutouts, or as part of the interactive webpages, against comprehension of the information that was not highlighted in these ways.

We found that the make it salient and make it relevant interventions performed better than the control on questions that related to the terms these interventions emphasized. This also did not lead to any reduction in performance on the terms that they did not emphasize.

Figure 11

NUMBER OF CORRECT ANSWERS ABOUT LIFE INSURANCE TERM POLICY THAT WERE EMPHASIZED, BY INTERVENTION FOR EXPERIMENT 1

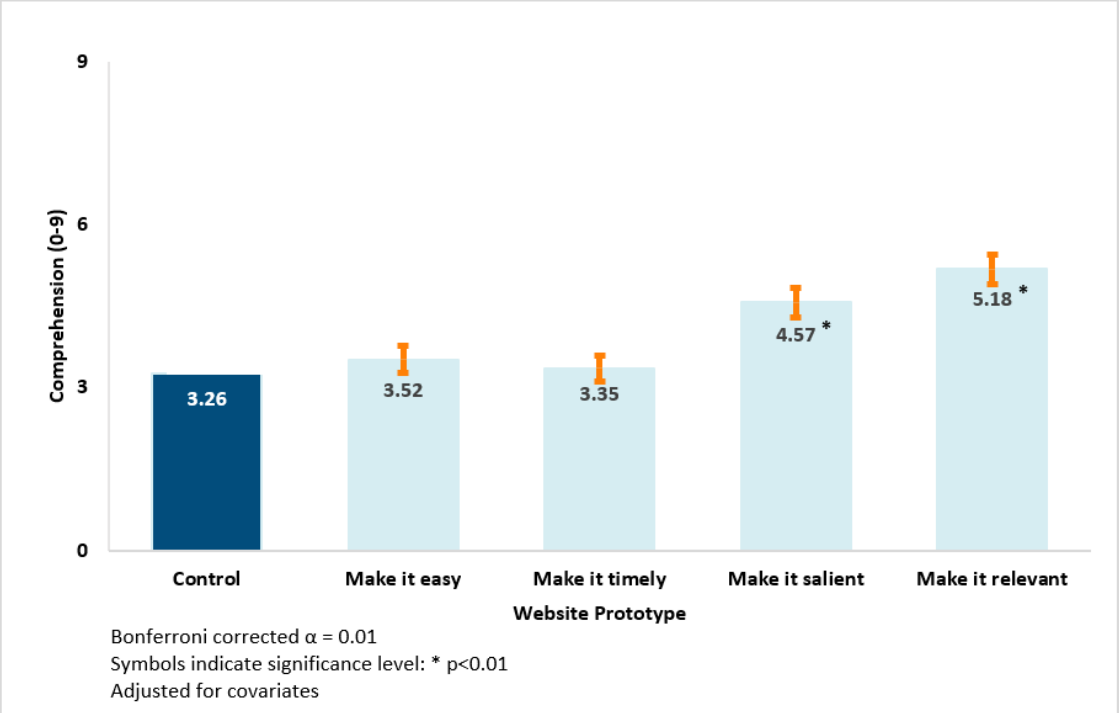
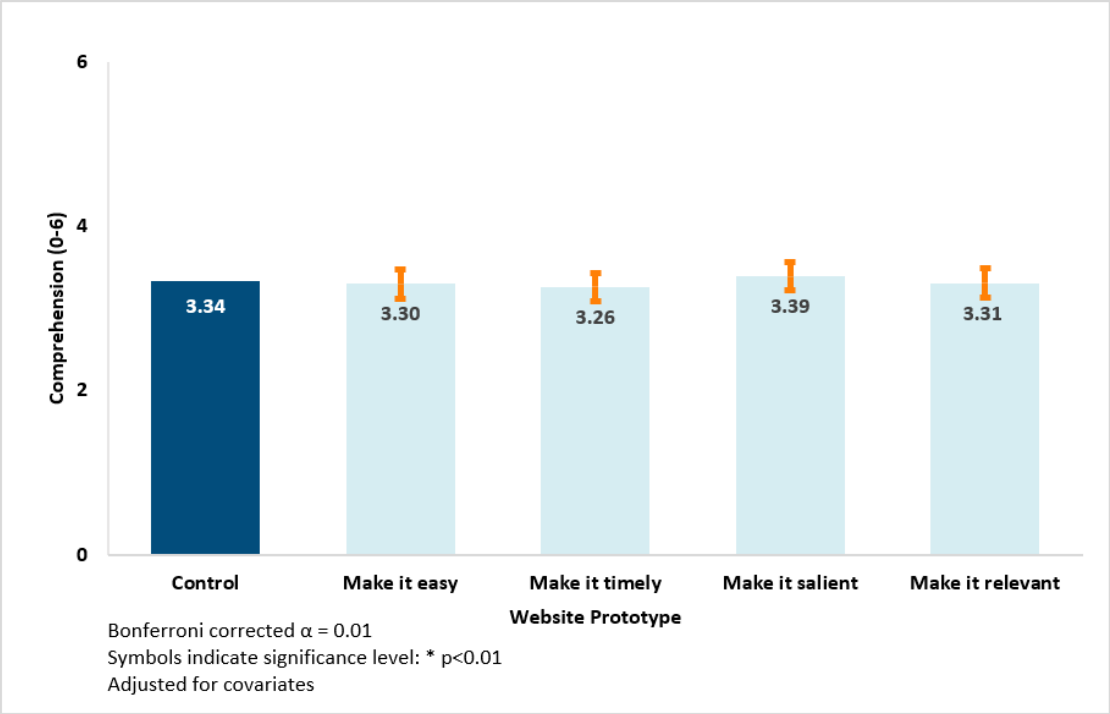


Figure 12
NUMBER OF CORRECT ANSWERS ABOUT LIFE INSURANCE TERM POLICY THAT WERE NOT EMPHASIZED, BY INTERVENTION FOR EXPERIMENT 1



Participants in the make it salient and make it relevant prototypes scored 40% and 59% higher, respectively, than those in the control on questions about the concepts and terminology that they emphasized. The make it easy and make it timely prototypes, in contrast, improved comprehension by only 8% and 3%, respectively, over the control prototype. These results were not statistically significant.

For terms that were not emphasized, comprehension neither improved nor worsened across all the versions.

4.5.2 SECONDARY ANALYSIS

The analyses in this section were not the primary focus of our study. As a result, given that as the number of comparisons are increased, one is more likely to obtain statistically significant results due to chance, so the results in this section should be interpreted with caution.

4.5.2.1 Overall comprehension and financial literacy

Higher levels of financial literacy correlate with higher levels of comprehension. We did not find that any intervention significantly helped (or hindered) individuals with lower (or higher) levels of financial literacy.[3]

[3] We utilized regression analysis to determine whether financial literacy moderated the effect of the interventions on comprehension. None of the interactions were statistically significant.

Figure 13

REGRESSION ANALYSIS FOR ASSESSING THE IMPACT OF FINANCIAL LITERACY ON COMPREHENSION

	Without financial literacy	With financial literacy
	Coefficient (standard error)	Coefficient (standard error)
Financial literacy		0.80** (0.06)
Make it easy	0.22 (0.17)	0.26 (0.16)
Make it timely	0.01 (0.16)	0.05 (0.15)
Make it salient	1.36** (0.18)	1.34** (0.17)
Make it relevant	1.88** (0.19)	1.93** (0.18)
Constant	6.60** (0.12)	5.02** (0.16)
Sample size	2,001	2,001
Symbol indicates significance level: ** p<0.01		

4.5.2.2 Robustness checks

We conducted a series of sensitivity tests. All the results displayed in this paper adjusted for demographics as they give better robustness for the main results. We have included the regression output, with and without the demographic variables, in the figures below.

Figure 14:

REGRESSION ANALYSIS FOR PRIMARY OUTCOME IN EXPERIMENT 1, OVERALL COMPREHENSION

	Without Covariates	With Covariates
	Coefficient (standard error)	Coefficient (standard error)
Make it easy	0.25 (0.17)	0.22 (0.17)
Make it timely	0.03 (0.16)	0.01 (0.16)
Make it salient	1.40** (0.18)	1.36** (0.18)
Make it relevant	1.89** (0.19)	1.88** (0.19)
Constant	6.58** (0.11)	6.60** (0.12)
Sample size	2,001	2,001
Symbols indicate significance level: ** p<0.01		

4.6 SUMMARY

The following recaps our findings from Experiment 1:

- The make it salient and make it relevant interventions increased comprehension scores by 21% and 28%, respectively, compared with the control. These results were statistically significant.
- The make it easy intervention increased participants' comprehension scores by 3% compared with the control, while the make it timely intervention increased comprehension by 0.2%. These results were not statistically significant.
- Participants in the make it salient and make it relevant interventions scored 40% and 59% higher, respectively, than those in the control on questions about the concepts and terminology that were emphasized. These results were statistically significant.
- The make it easy intervention improved comprehension by 8%, while make it timely increased comprehension by 3%. These results were not statistically significant.

- For terms that were not emphasized, comprehension neither improved nor worsened across all the versions.
- Higher levels of financial literacy correlated with higher levels of comprehension. We did not find that any intervention significantly helped (or hindered) individuals with lower (or higher) levels of financial literacy.

Section 5: Experiment 2: Exploring Video, AI, and Messenger Identity for Presenting Product Information

In our second experiment, we tested whether presenting information via video, including AI-generated video, improved comprehension compared to using text. We used the same website prototype journey as in Experiment 1.

5.1 EXPERIMENT DESIGN

The experiment used five versions of the prototype website, which allowed us to compare text, video, and AI video messages and test whether using video improved on the best-performing version of the site from Experiment 1.

We sought to answer the following questions:

- Question 1: Can utilizing video help garner further gains in customer comprehension when included in our best-performing website prototype, make it relevant? To answer this question, we created two new website prototypes.
    - The first prototype used the successful techniques from Experiment 1. This version was equivalent to the make it relevant prototype from the first experiment.
    - The second prototype was equivalent to the make it relevant prototype above but included a human-featured video to explain the key information.

- Questions 2 and 3: Is video better at presenting information than text? And if so, can AI be leveraged just as well? To answer these questions, we created three new website prototypes.
    - The first prototype was a simple version of the website with a long-form text description, equivalent to the make it easy prototype used in Experiment 1.
    - The second prototype presented the same information as the first but used a video featuring a human actor to present the information.
    - The third prototype was equivalent to the second but used an AI-generated avatar based on the human actor's appearance to present the information.

5.2 EXPERIMENT PARTICIPANTS

We recruited 2,005 new participants residing in the U.S. Unlike the first experiment, this one did not contain a nationally representative sample due to challenges in sample recruitment. The demographic distribution of participants can be found in Appendix B. For additional details regarding the participants in this experiment, please review subsection 3.1.2 on study participants.

5.3 ASSESSING THE MESSENGER EFFECT

We tested how the messengers in the two video versions – the human-featured and the AI-featured – were perceived by measuring a range of characteristics and modeling the effect of these perceptions on comprehension and user experience. Participants were asked to what extent they agreed or disagreed that the following characteristics described the subject on the screen:

- Similarity to the participant in appearance, personality, and cultural background
- Trustworthiness
- Credibility
- Likeability
- Expertise
- Unsettling[4]

5.4 CREATING THE HUMAN AND AI VIDEOS

The video featured a white male, age 38, with a North American accent, wearing glasses, a blue shirt, and a suit jacket. The script was an exact replica of the text information on the website.

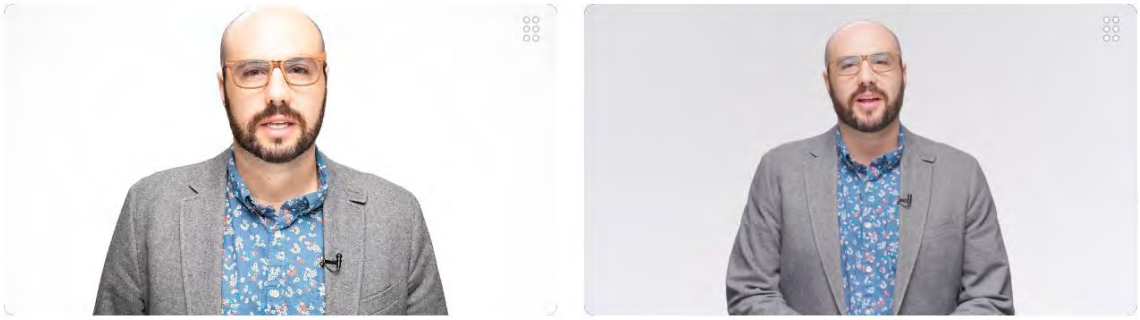
The presenter was filmed against a plain white background, with his head and shoulders in the shot.

To create the AI version of the video, we used a headshot taken on-set from the video recording of the same human presenter in the same position. We then used software which animated the image as if it were narrating the same script. By doing so, we created a version of the video with an AI-generated messenger that was based on the messenger in the human-featured video.

In both cases, the video was presented on the first information page of the website before users progressed to the underwriting journey.

[4] This characteristic is meant to measure the **uncanny valley** effect. The uncanny valley effect is a common unsettled feeling people experience when androids or humanoid robots and audio/visual simulations closely resemble humans in many respects but aren't quite convincingly realistic (Gillis, 2024).

Figure 15
VIDEO STILLS OF AI-FEATURED VIDEO (LEFT) AND HUMAN -FEATURED VIDEO (RIGHT)



5.5 RESULTS

Similar to the analysis section for Experiment 1, this analysis was divided into two sections: primary and secondary. Again, our main outcome of interest, overall comprehension, was examined in the primary section. Additional exploratory work is reserved for the secondary analysis section and should be interpreted with caution.

5.5.1 PRIMARY ANALYSIS

5.5.1.1 Overall comprehension

We first aimed to understand if video added any additional value to our best-performing website prototype from Experiment 1 (the make it relevant prototype). This comparison is important because it best fits the context of how carriers would most practically present this information in the real world. That is, the video is included as an additional method of engagement throughout the customer journey instead of standalone.

Figure 16

MEASURING THE IMPACT ON COMPREHENSION OF ADDING VIDEO TO THE MAKE IT RELEVANT PROTOTYPE (THE NUMBER OF CORRECT ANSWERS ABOUT LIFE INSURANCE TERM POLICY OUT OF 13[5])

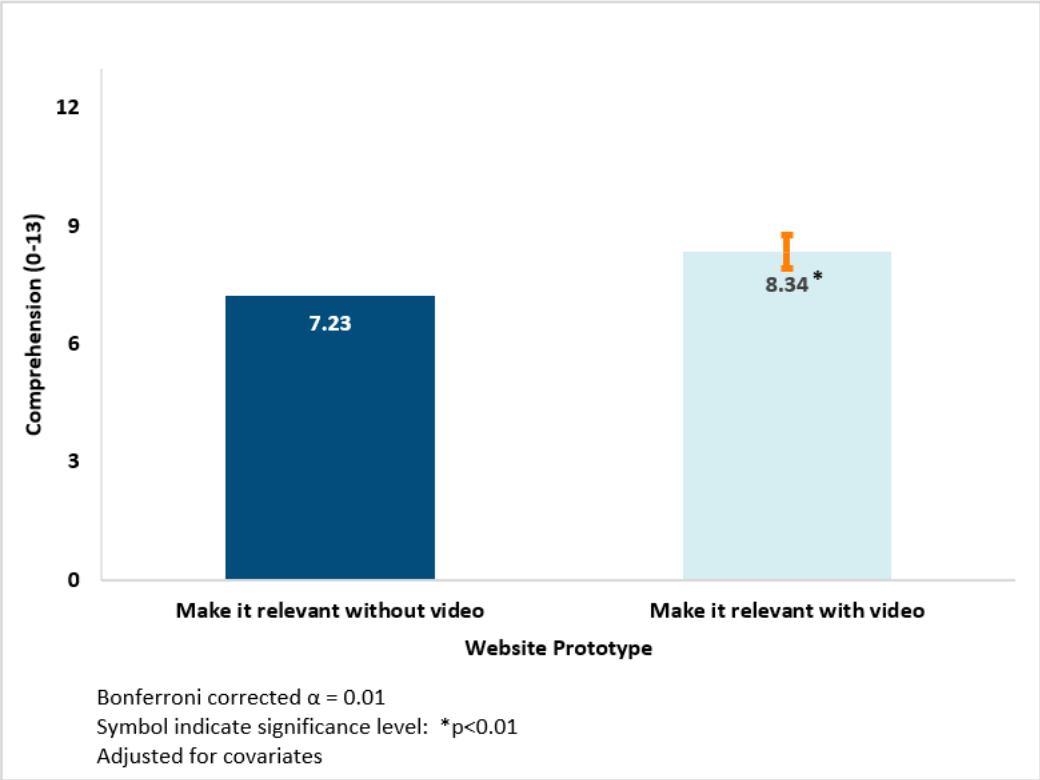


Figure 16 shows that adding video to our best-performing website increased customer comprehension by a significant 15%. As in Experiment 1, these estimates are adjusted by covariates that were observed to be imbalanced after randomization. The balance table can be found in Appendix C.

Next, we aimed to understand if video is better at presenting information over text and, if so, whether AI can be leveraged just as well. Given the higher investment required to create video over text-based content, if an AI-featured video performed just as well as a human counterpart, this would significantly cut down on costs as these videos take much less time to create.

To understand this relationship, we replicated the simplified website prototype from Experiment 1. This allowed us to understand the impact of text-only content on comprehension. Next, we replicated the simplified website, except the website's text content was utilized as the script for our videos. As a result, we had three versions compared for this analysis: 1) make it easy without video; 2) make it easy with human video; and 3) make it easy with AI video.

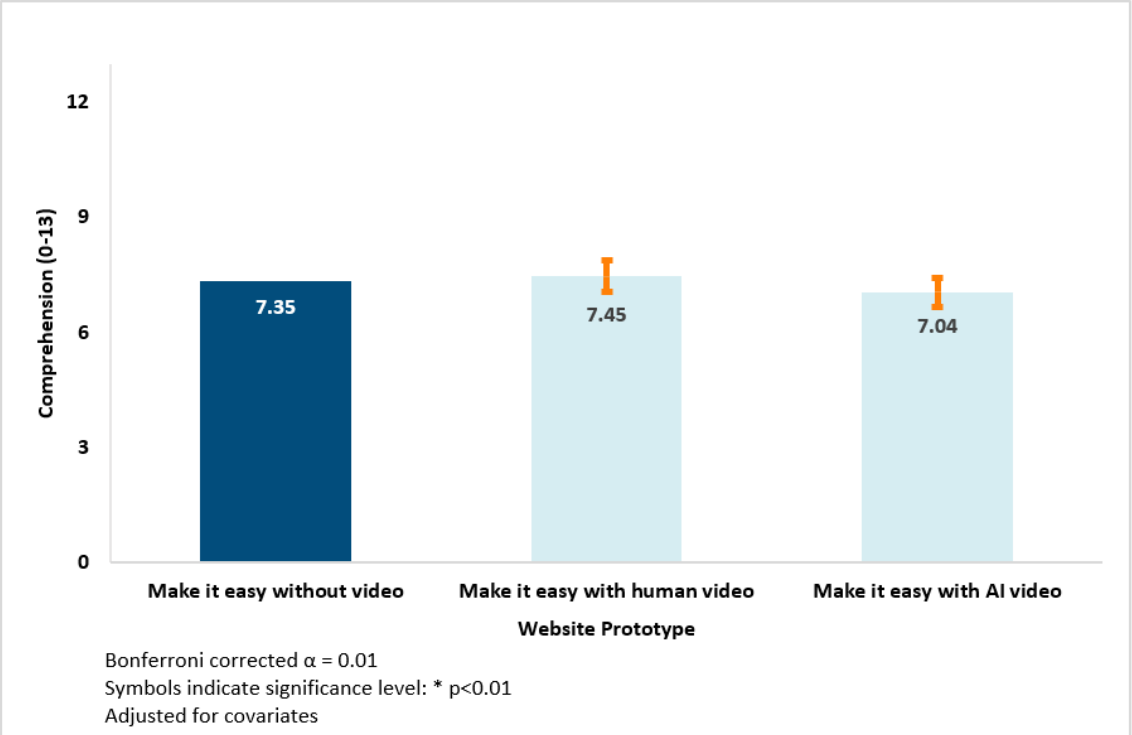
We took this approach because our main aim was to isolate the impact of media on comprehension. Keeping the digital journey as simple as possible, that is, eliminating the additional features that we saw in the previous

[5] After Experiment 1, we reviewed the questions that constitute the comprehension test to determine if any failed to discriminate appropriately between low- and high-performing participants. We conducted an item analysis and identified two of the initial 15 questions that added no additional value for measuring comprehension. We removed those two questions and utilized the remaining 13 for the second experiment.

experiment aided comprehension, would help us understand to what extent we can attribute any gains in comprehension to information being relayed in video format instead of text. With this framework, we could then also isolate the impact of having different narrators on comprehension, that is, a human-featured presenter versus an AI-featured presenter.

Figure 17

MEASURING THE IMPACT OF MEDIA (TEXT VS. VIDEO) AND AI ON COMPREHENSION



The results in Figure 17 indicate that media selection alone does not impact comprehension of term life insurance. Customer comprehension is highest when information is presented in video format with a human presenter (7.45) and lowest when information is presented utilizing an AI video (7.04). However, these differences did not significantly differ from the "make it easy without video" prototype (7.35).

Last, while the human-featured video (7.45) slightly outperformed the AI avatar version (7.04), this result was not statistically significant.

Our original intent behind utilizing the make it easy prototype to understand the impact of video on comprehension, and then separately understanding the impact of a human-featured versus an AI-featured video, was to be able to isolate the effect of media type from other confounding influences as much as possible. However, the results indicated that the media type used, by itself, did not significantly improve comprehension. However, when video was added to the journey along with other behavioral science techniques, video led to gains in comprehension.

Given that the context in which video is added matters to improving comprehension, it is unclear whether the lack of statistical difference between the human-featured and the AI-featured video would be observed if they were added to the make it relevant prototype. Future research should explore this area further.

5.5.2 SECONDARY ANALYSIS

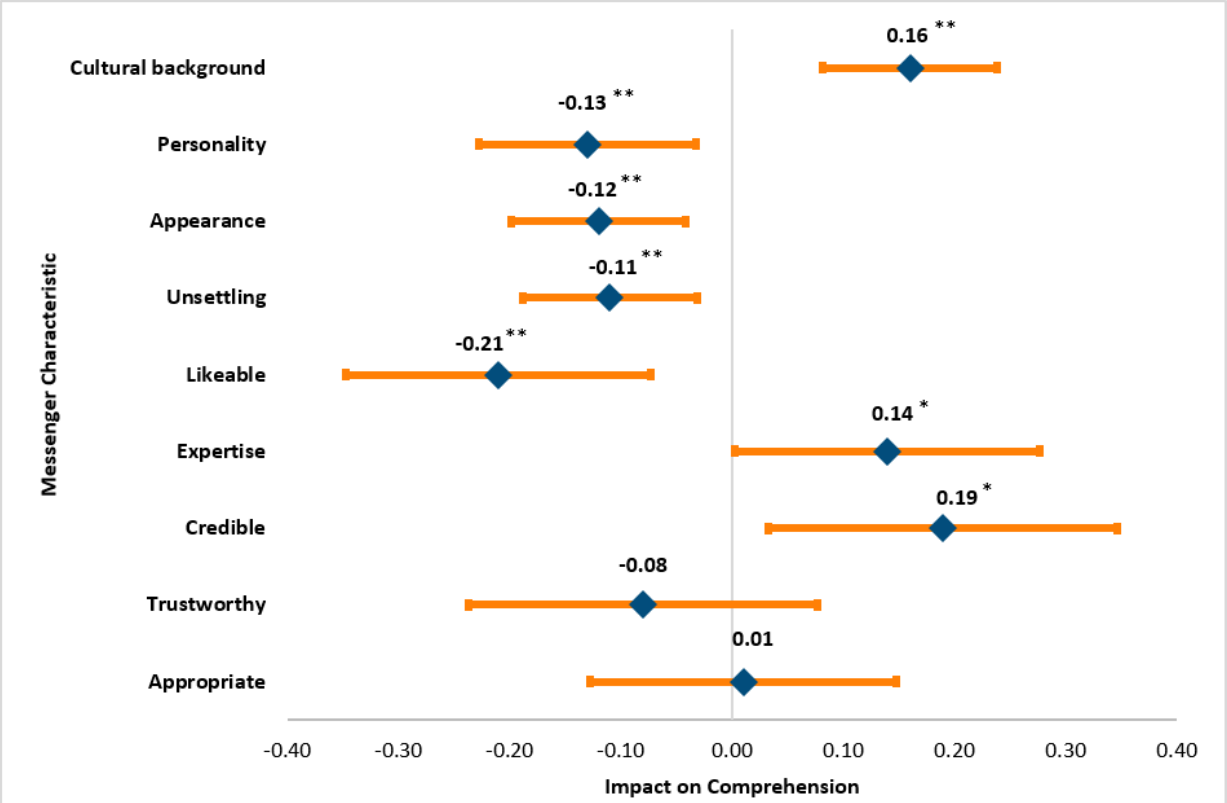
5.5.2.1 The messenger effect and comprehension

We were interested in exploring how perceptions about the messenger can potentially impact comprehension.

We examined a series of characteristics, ranging from trustworthiness to similarity in cultural background, by asking participants to what extent they agreed or disagreed that the characteristics described the presenter on the screen. The full list of characteristics analyzed is in Figure 18.

Figure 18

MEASURING THE IMPACT OF PERCEIVED MESSENGER CHARACTERISTICS ON COMPREHENSION (0-13) (REGRESSION COEFFICIENTS)



Perceived similarity in cultural background, and whether the messenger was perceived as credible and an expert, led to modest gains in comprehension. However, likeability and perceived similarity in appearance and personality reduced comprehension, echoing the findings of previous research in other contexts (see: Marandola *et al.*, 2020 and Elshout *et al.*, 2016). Last, experiencing the messenger as unsettling significantly reduced comprehension as well.

Next, we were interested in investigating if and how the AI avatar and human counterpart were viewed similarly or dissimilarly across participants. Figure 19 shows the degree to which participants agreed or disagreed that a particular characteristic described the presenter they were randomly assigned to view.

Figure 19

DIFFERENCES IN HOW HUMAN VS. AI VIDEO PRESENTERS ARE PERCEIVED, AGREE/DISAGREE SCALE (0-10)

Symbols indicate significance level: + p<0.1, * p<0.05, ** p<0.01
Adjusted for covariates

Across all characteristics (except unsettling), participants viewed the human presenter as significantly more credible, expert, likeable, and more similar in appearance, personality, and cultural background to themselves. Interestingly, though, as our previous analysis showed, being viewed more favorably across all dimensions does not always lead to gains in comprehension. Indeed, in this example, increases in likeability and personality dampened comprehension. This worked in the favor of an AI messenger who was viewed as less likeable and less similar in personality to participants than the human messenger.

Although additional work is needed in this area, our initial results seem to support existing evidence about the importance of representation in financial products. Specifically, if the characteristic "cultural background" is viewed as a proxy for race and ethnicity, the results indicate that representation in videos may provide gains in comprehension. While the AI technology is not quite there in terms of being viewed favorably with respect to cultural background, future enhancements would allow for effective and efficient development of AI-centered videos that are representative of various racial and ethnic backgrounds, helping to reduce the life insurance comprehension gap.

5.5.2.2 Robustness checks

Below we include the regression output for the primary outcome, with and without the demographic variables, as a sensitivity test.

Figure 20

REGRESSION ANALYSIS FOR EXPERIMENT 2'S PRIMARY OUTCOME, OVERALL COMPREHENSION

	Without Covariates	With Covariates
	Coefficient (standard error)	Coefficient (standard error)
Make it relevant with video	1.09** (0.21)	1.11** (0.22)
Constant	7.38** (0.14)	7.23** (0.20)
Sample size	771	771
Symbol indicate significance level: **p<0.01		

Figure 21

REGRESSION ANALYSIS FOR EXPERIMENT 2'S PRIMARY OUTCOME, OVERALL COMPREHENSION

	Without Covariates	With Covariates
	Coefficient (standard error)	Coefficient (standard error)
Make it easy with human video	0.23 (0.21)	0.10 (0.21)
Make it easy with AI video	-0.37+ (0.21)	-0.31 (0.20)
Constant	7.63** (0.13)	7.35** (0.24)
Sample size	1,234	1,234

Symbol indicates significance level: +p<0.1, * p<0.05, ** p<0.01

5.6 SUMMARY

The following recaps our findings from Experiment 2:

- Adding video to our best-performing website (make it relevant) significantly increased customer comprehension (by 15%). However, adding video to the make it easy website did not have any effect.
- Viewing a messenger as credible, expert, and having a similar cultural background significantly increased user comprehension.
- Viewing a messenger as likeable, similar in appearance and personality, and unsettling decreased comprehension.
- The AI messenger was perceived as significantly more unsettling than the human messenger.
- The human messenger was perceived as significantly more credible, expert, likeable, and similar in appearance, personality, and cultural background to the viewer than was the AI messenger.

Section 6: Conclusions and Recommendations

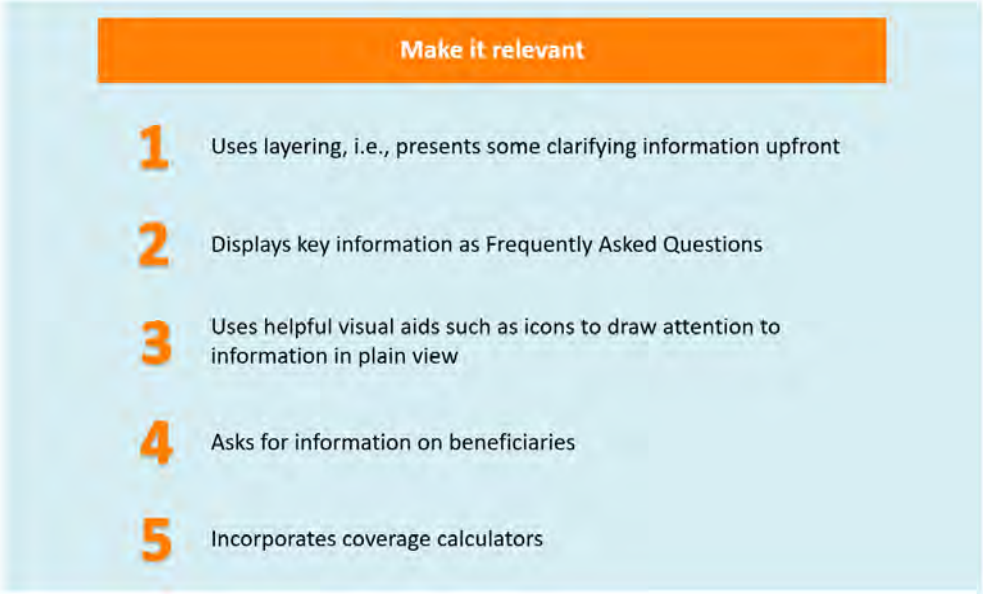
We started this research knowing that information about life insurance in sales journeys is often too complex and challenging for customers to understand. Past research has estimated that only about a quarter of life insurance information provided is understood by current and prospective customers (LIMRA, 2020). This research aimed to help bridge the existing knowledge gap so that individuals can feel more comfortable making purchase decisions on their own, particularly given the rise of D2C.

Our research revealed that taking complex life insurance information and simplifying it alone does not significantly improve comprehension. Instead, simplification must be utilized alongside other behavioral science techniques. Specifically, we identified that increasing the salience of information through FAQs, icons, and attractive text improves comprehension of all content by 21%. Additionally, when focusing on the specific information utilizing these techniques, comprehension increased by 40%. This finding demonstrates the importance of strategically utilizing techniques such as FAQs to present critical information, as this information is much more likely to be understood than other information on a site that is shown in plain text.

Our research also found that adding positive friction to the journey significantly improved overall comprehension of all content by 28%, rising to 59% when focusing on content specifically added to create positive friction (referred to as the make it relevant intervention). This is an important finding for our industry as customer journey design often focuses on getting individuals through the sales journey as quickly as possible. This finding contradicts the typical focus of customer journey design that attempts to speed people through the process by removing friction wherever possible. Instead, helping customers to engage with important but difficult-to-understand concepts in content by making it relevant for them significantly improves understanding of that information. Figure 22 below summarizes the effective techniques that are included in the make it relevant prototype.

Figure 22

SUMMARY OF EFFECTIVE TECHNIQUES UTILIZED IN THE MAKE IT RELEVANT PROTOTYPE



We also observed that including content in video format improves comprehension. However, to acquire further gains in comprehension, choosing the right messenger is essential, as it was shown that doing so can provide additional uplift. For example, a speaker perceived by the viewer as sharing the same (or similar) cultural background is associated with higher levels of comprehension, whereas likeability, counterintuitively, dampens comprehension.

We acknowledge that creating video content can be cost-prohibitive, especially when compared to text. As a result, we delved into examining whether an AI avatar would work as a suitable messenger to replace a human narrator. Initial results suggest that it is too early to follow that path. The AI messenger was perceived as more unsettling and less credible than its human counterpart. However, it is possible that AI messengers can serve as a scalable alternative in customer journey design in the future as they are further improved.

While this research built upon existing theory and considered academic literature, and was rigorously designed and tested, this was only a simulation. The magnitude of these effects needs to be evaluated in the real world. One criticism levied against these experiments is that the impact of interventions is artificially heightened as participants are more likely to pay attention during these types of evaluations than they would in a real-world context. For example, 76% of participants said they watched the full video they were assigned, but it is unclear whether we would observe the same level of attention when customers are undergoing an actual life insurance purchase journey. Similarly, comprehension improved significantly when participants were encouraged via positive friction to engage with additional content on the website. Would real customers also become similarly engaged, or would they grow frustrated and drop off the site? Even if drop-offs occur, would those who remain and purchase result in fewer lapses over the long run, as they may be likelier to have a better understanding of the product and its value? Lastly, even though our work identified opportunities for insurers to improve customer comprehension, additional work is needed to further narrow the comprehension gap.

While there are still many open questions to resolve, our work should serve as a north star for insurers who aim to earn the trust and business of customers who need more than a help button to make such a complex and critical financial decision.

Section 7: Acknowledgments

The authors' deepest gratitude goes to those without whose efforts this project could not have come to fruition: the volunteers who generously shared their wisdom, insights, advice, guidance, and arm's-length review of this study prior to publication. Any opinions expressed may not reflect their opinions, nor those of their employers. Any errors belong to the authors alone.

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Appendix A: Study Design Elements

A.1 COMPREHENSION TEST

1. Which of the below is correct regarding the “death benefit: for this policy?
   a) It's the amount the customer would have to pay each month for the policy
   b) It's the amount a person the customer selects would receive whenever they pass away
   c) It's the amount a person the customer selects would receive if they pass away, but only within the time period they select
   d) None of the above

2. What does ‘term’ mean for this policy?
   a) The amount of time before the monthly payments change
   b) The length of time the quote is valid for
   c) The length of time the policy lasts for
   d) None of the above

3. Which of the below is correct regarding what a “beneficiary” means for this policy?
   a) One person who would receive the whole payout if the policy holder passes away
   b) One or more people who would receive equal portions of the payout if the policy holder passes away
   c) One person who would receive a specified portion of the payout if the policy holder passes away
   d) One or more people who receive specified portions of the payout if the policy holder passes away
   e) The information is not provided

4. Which of the below is correct regarding the monthly payments for this policy?
   a) They stay the same until the policy holder passes away
   b) They stay the same for a specified period of time or until the policy holder passes away, and then stop
   c) They can change at any time until the policy holder passes away
   d) They can change at any time, for a specified period of time and then they stop altogether

5. If you were to buy this policy, would you need to take a medical examination?
   a) Yes, every customer is required to have an examination
   b) No, no customers are ever required to have an examination
   c) Yes, in some circumstances an examination may be required
   d) The information is not given

6. Can this policy be traded back to the insurance company, in return for a cash payout?
   a) Yes, the policy holder can cash in an amount in proportion to how many years are left on the policy
   b) No, this policy cannot be traded for cash in any circumstances
   c) Yes, the policy can be traded for cash, but only in some circumstances
   d) The information is not given

7. Which of the following statements is true regarding how long a customer would be insured for?
   a) The customer would be insured for their whole life
   b) The customer would be insured for a specified period of time, but they can convert this to a Whole Life policy
   c) The customer would be insured for a specified period of time only
   d) The information is not given

8. In which of the following situations would a payout be given?
   a) Only if the insured person dies
   b) If the insured person dies or is diagnosed with a terminal illness

c) If the insured person dies, is diagnosed with a terminal illness, or is diagnosed with a specified serious illness
d) None of the above

9. How long is the quote valid for?
   a) Unlimited time
   b) 30 days
   c) 60 days
   d) The information is not given

10. What is "Term Life Insurance" best suited to cover people for?
    a) To cover monthly expenses if someone loses their job
    b) To make sure large temporary financial commitments like a mortgage or loan can be paid
    c) To cover the costs of a funeral
    d) To leave a financial legacy for the family regardless of temporary financial responsibilities

11. What is the most important way for people to decide how long to be covered for with this type of policy?
    a) Plan to coincide closely with their retirement date
    b) Decide when it when it would be nice for their family to receive a payout based on their retirement ages
    c) Figure out how long their longest or most pressing financial commitment will last and choose a period close to that
    d) Plan around when their investments will mature
    e) None of the above

12. Which of the below is true?
    a) The monthly payments decrease as the customer's mortgage decreases
    b) The policy can be converted to Whole Life
    c) The customer will need to complete the lifestyle questions again every few years
    d) At the end of the term the monthly payments will continue unless the customer cancels the policy
    e) None of the above

13. Which of the below is false regarding Whole Life policies?
    a) The customer can convert their policy to Whole Life by calling the company
    b) The customer may need to complete more questions to convert their policy to Whole Life
    c) The customer may need to complete a medical examination to convert their policy to Whole Life
    d) None of the above

14. Which of the below should a customer consider when deciding how much coverage to select?
    a) The amount left to pay on a mortgage
    b) Monthly household bills
    c) Outstanding loans
    d) All of the above

15. Imagine a customer who is looking for coverage for 30 years or more. Based on the product sold by this website, what would be the best type of policy for this customer?
    a) Term policy
    b) Whole Life policy
    c) Critical Illness policy
    d) None of the above

A.2 FINANCIAL LITERACY TEST

1. Suppose you had $100 in a savings account, and the interest rate was 2% per year. After five years, how much do you think you would have in the account if you left the money to grow?

a) More than $102
b) Exactly $102
c) Less than $102
d) Do not know
e) Refuse to answer

2. Imagine that the interest rate on your savings account was 1% per year and inflation was 2% per year. After one year, how much would you be able to buy with the money in this account?

a) More than today
b) Exactly the same
c) Less than today
d) Do not know
e) Refuse to answer

3. Buying shares in a single company usually provides a safer return than buying units in a managed share fund.

a) True
b) False
c) Do not know
d) Refuse to answer

A.3 MANIPULATION CHECKS

1. What color was the company's logo?
    a) Black on a pink banner
    b) White on a blue banner
    c) Blue with no banner
    d) None of the above

2. Which of the following activities did the site ask its customers?
    a) Whether they have dangerous hobbies such as skydiving or scuba diving
    b) Whether they take drugs
    c) Whether they have any driving convictions
    d) What they do for work

3. What was the code word shown in the site?
    a) Insurance is good
    b) Insurance is useful
    c) Insurance is cool
    d) Insurance is healthy
    e) Insurance is great
    f) Insurance is easy
    g) Insurance is essential
    h) Insurance is boring
    i) I love insurance
    j) Insurance is cheap

Appendix B: Study Participants

B.1 DEMOGRAPHIC DISTRIBUTIONS FOR EXPERIMENT 1

Figure B1

EXPERIMENTAL CONDITIONS AND SAMPLE SIZE

	Overall (N=2,001)				
	Control	Make it easy	Make it timely	Make it salient	Make it relevant
n	428	429	432	358	354

Figure B2

DISTRIBUTION OF AGES ACROSS ALL CONDITIONS

Overall (N=2,001)	
Age	
18-24	11.60%
25-34	18.70%
35-44	18.30%
45-54	15.10%
55-64	14.40%
65-74	16.00%
75-84	5.50%
85+	0.30%

Figure B3

DISTRIBUTION OF INCOME ACROSS ALL CONDITIONS

Overall (N=2,001)	
Income	
Less than $10,000	4.40%
$10,000 - $19,999	6.25%
$20,000 - $29,999	10.10%
$30,000 - $39,999	9.65%
$40,000 - $49,999	10.70%
$50,000 - $59,999	10.60%
$60,000 - $69,999	6.80%
$70,000 - $79,999	8.35%
$80,000 - $89,999	4.45%
$90-000 - $99,999	5.75%
$100,000 - $149,999	12.90%
$150,000 - $199,999	5.85%
$200,000+	4.10%

Figure B4

DISTRIBUTION OF GENDER ACROSS ALL CONDITIONS

Overall (N=2,001)		
Gender		
Female	Male	Other (Non-binary/ third gender)
52.20%	46.80%	1.00%

Figure B5

DISTRIBUTION OF REGION ACROSS ALL CONDITIONS

Overall (N=2,001)			
Region			
Northeast	South	Midwest	West
18.64%	40.38%	20.84%	20.14%

Figure B6
DISTRIBUTION OF RACE ACROSS ALL CONDITIONS

Overall (N=2,001)						
Race						
	White	Black	American Indian	Asian	Hawaiian or Pacific Islander	Other
	80.40%	13.10%	0.95%	3.40%	0.40%	1.75%

Figure B7
DISTRIBUTION OF HISPANIC ACROSS ALL CONDITIONS

Overall (N=2,001)	
Hispanic	
No	Yes
89.80%	10.20%

Figure B8
DISTRIBUTION OF RELATIONSHIP STATUS ACROSS ALL CONDITIONS

Overall (N=2,001)					
Relationship Status					
Never married	Currently married	Separated	Divorced	Widowed	Prefer not to say
33.38%	45.83%	1.90%	12.64%	5.15%	1.10%

Figure B9
DISTRIBUTION OF RESIDENCE ACROSS ALL CONDITIONS

Overall (N=2,001)			
Residence			
Own residence (outright)	Own residence (mortgage)	Rent residence	Prefer not to say
28.60%	32.60%	34.80%	4.00%

Figure B10

DISTRIBUTION OF PARTICIPANTS WITH CHILDREN ACROSS ALL CONDITIONS

Overall (N=2,001)		
Children		
Yes	**No**	**Prefer not to say**
54.87%	44.08%	1.05%

Figure B11

DISTRIBUTION OF EDUCATIONAL ATTAINMENT ACROSS ALL CONDITIONS

Overall (N=2,001)						
Education						
Less than high school	**High school**	**Some college**	**2-year degree**	**4-year degree**	**Professional degree**	**Doctorate**
1.75%	19.89%	25.09%	10.84%	26.59%	13.34%	2.50%

Figure B12

DISTRIBUTION OF INSURANCE OWNERSHIP ACROSS ALL CONDITIONS

Overall (N=2,001)	
Insurance Ownership	
Has insurance	85.90%
Life insurance (independent)	27.90%
Life insurance (employer)	22.10%
Health insurance (independent)	35.20%
Health insurance (employer)	32.90%
Other insurance	53.60%
None	10.80%
Prefer not to say	3.35%

Figure B13

PROPORTION OF COMPREHENSION QUESTIONS ANSWERED CORRECTLY

Overall (N=2,001)		
Comprehension Questions		
	Mean	Median [Min, Max]
Question 1	0.521	1.00 [0, 1.00]
Question 2	0.819	1.00 [0, 1.00]
Question 3	0.299	0 [0, 1.00]
Question 4	0.618	1.00 [0, 1.00]
Question 5	0.322	0 [0, 1.00]
Question 6	0.220	0 [0, 1.00]
Question 7	0.382	0 [0, 1.00]
Question 8	0.260	0 [0, 1.00]
Question 9	0.690	1.00 [0, 1.00]
Question 10	0.387	0 [0, 1.00]
Question 11	0.461	0 [0, 1.00]
Question 12	0.423	0 [0, 1.00]
Question 13	0.352	0 [0, 1.00]
Question 14	0.853	1.00 [0, 1.00]
Question 15	0.618	1.00 [0, 1.00]
Average Comprehension Score	7.23	7.00 [0, 15.0]

Figure B14

PROPORTION OF FINANCIAL LITERACY QUESTIONS ANSWERED CORRECTLY

Overall (N=2,001)				
Financial Literacy				
	Question 1	Question 2	Question 3	Total Correct
Mean	0.809	0.653	0.451	1.91
Median [Min, Max]	1 [0,1]	1 [0,1]	0 [0,1]	2 [0,3]

B.2 DEMOGRAPHIC DISTRIBUTIONS FOR EXPERIMENT 2

Figure B15

EXPERIMENTAL CONDITIONS AND SAMPLE SIZE

	Overall (N=2,005)				
	Make it relevant without video	Make it relevant with video	Make it easy without video	Make it easy with human video	Make it easy with AI video
n	441	330	446	383	405

Figure B16

DISTRIBUTION OF AGES ACROSS ALL CONDITIONS

Overall (N=2,005)	
Age	
18-24	1.40%
25-34	5.89%
35-44	11.92%
45-54	12.02%
55-64	24.74%
65-74	30.02%
75-84	12.82%
85+	1.20%

Figure B17

DISTRIBUTION OF INCOME ACROSS ALL CONDITIONS

(N=2,005)	
Income	
Less than $10,000	3.69%
$10,000-$19,999	7.83%
$20,000-$29,999	10.27%
$30,000-$39,999	11.47%
$40,000-$49,999	8.98%
$50,000-$59,999	9.83%
$60,000-$69,999	7.48%
$70,000-$79,999	5.84%
$80,000-$89,999	4.19%
$90-000-$99,999	3.79%
$100,000-$149,999	15.51%
$150,000-$199,999	5.69%
$200,000+	5.44%

Figure B18

DISTRIBUTION OF GENDERS ACROSS ALL CONDITIONS

Overall (N=2,005)		
Gender		
Female	Male	Other (Non-binary/ third gender)
56.20%	43.60%	0.20%

Figure B19

DISTRIBUTION OF REGION ACROSS ALL CONDITIONS

Overall (N=2,005)			
Region			
Northeast	South	Midwest	West
20.00%	36.60%	23.50%	19.90%

Figure B20

DISTRIBUTION OF RACE ACROSS ALL CONDITIONS

Overall (N=2,005)					
Race					
White	Black	American Indian	Asian	Hawaiian or Pacific Islander	Other
85.94%	8.38%	0.65%	2.54%	0.15%	2.34%

Figure B21

DISTRIBUTION OF HISPANICS ACROSS ALL CONDITIONS

Overall (N=2,005)	
Ethnicity	
No	Yes
94.90%	5.10%

Figure B22

DISTRIBUTION OF RELATIONSHIP STATUS ACROSS ALL CONDITIONS

Overall (N=2,005)					
Relationship Status					
Never married	Now married	Separated	Divorced	Widowed	Prefer not to say
21.65%	49.33%	1.75%	17.41%	9.43%	0.45%

Figure B23

DISTRIBUTION OF RESIDENCE ACROSS ALL CONDITIONS

Overall (N=2,005)			
Residence			
Own residence (outright)	Own residence (mortgage)	Rent residence	Prefer not to say
38.70%	32.97%	26.38%	1.95%

Figure B24

DISTRIBUTION OF PARTICIPANTS WITH CHILDREN ACROSS ALL CONDITIONS

Overall (N=2,005)		
Children		
Yes	**No**	**Prefer not to say**
59.25%	40.50%	0.25%

Figure B25

DISTRIBUTION OF EDUCATIONAL ATTAINMENT

Overall (N=2,005)							
Education							
Less than high school	**High school**	**Some college**	**2-year degree**	**4-year degree**	**Professional degree**	**Doctorate**	**Prefer not to say**
1.00%	17.76%	21.95%	12.02%	28.63%	15.76%	2.74%	0.15%

Figure B26

DISTRIBUTION OF INSURANCE OWNERSHIP ACROSS ALL CONDITIONS

	Overall (N=2,005)
Insurance Ownership	
Has insurance	91.80%
Life insurance (independent)	36.10%
Life insurance (employer)	19.90%
Health insurance (independent)	44.90%
Health insurance (employer)	30.90%
Other insurance	65.00%
None	6.63%
Prefer not to say	1.60%

Figure B27

PROPORTION OF COMPREHENSION QUESTIONS ANSWERED CORRECTLY

Overall (N=2,005)		
Comprehension Questions		
	Mean	Median [Min, Max]
Question 1	0.66	1.00 [0, 1.00]
Question 2	0.90	1.00 [0, 1.00]
Question 3	0.52	1.00 [0, 1.00]
Question 4	0.69	1.00 [0, 1.00]
Question 5	0.58	1.00 [0, 1.00]
Question 6	0.37	0 [0, 1.00]
Question 7	0.61	1.00 [0, 1.00]
Question 8	0.25	0 [0, 1.00]
Question 9	0.63	1.00 [0, 1.00]
Question 10	0.71	1.00 [0, 1.00]
Question 11	0.67	1.00 [0, 1.00]
Question 12	0.40	0 [0, 1.00]
Question 13	0.68	1.00 [0, 1.00]
Average Comprehension Score	7.68	8.00 [0, 13.0]

Figure B28

PROPORTION OF FINANCIAL LITERACY QUESTIONS ANSWERED CORRECTLY

Overall (N=2,005)				
Financial Literacy				
	Question 1	Question 2	Question 3	Total Correct
Mean	0.85	0.76	0.56	2.17
Median [Min, Max]	1 [0, 1.00]	1 [0, 1.00]	1 [0, 1.00]	2 [0, 3.00]

Appendix C: Analysis

C.1 BALANCE TABLE FOR EXPERIMENT 1

Figure C1

EXPERIMENT 1 BALANCE TABLE: COMPARING THE CONTROL (PROTOTYPE 1) AGAINST MAKE IT EASY (PROTOTYPE 2), MAKE IT TIMELY (PROTOTYPE 3), MAKE IT SALIENT (PROTOTYPE 4), AND MAKE IT RELEVANT (PROTOTYPE 5)

Overall (N=2,001)										
Balance Table										
Variable	Variable Label	Prototype 1 (P1) Proportion	Prototype 2 (P2) Proportion	Prototype 3 (P3) Proportion	Prototype 4 (P4) Proportion	Prototype 5 (P5) Proportion	P1 vs. P2 p-value	P1 vs. P3 p-value	P1 vs. P4 p-value	P1 vs. P5 p-value
Age	18-24	0.12	0.14	0.12	0.10	0.10	0.55	0.79	0.42	0.38
Age	25-34	0.18	0.21	0.16	0.20	0.19	0.27	0.61	0.31	0.55
Age	35-44	0.19	0.18	0.19	0.16	0.20	0.59	0.81	0.19	0.68
Age	45-54	0.13	0.15	0.15	0.16	0.18	0.33	0.35	0.16	0.06
Age	55-64	0.16	0.13	0.14	0.16	0.14	0.24	0.59	0.92	0.41
Age	65-74	0.16	0.17	0.19	0.14	0.14	0.79	0.31	0.34	0.44
Age	75-84	0.06	0.04	0.06	0.07	0.05	0.08	0.64	0.71	0.46
Age	85+	0.00	0.00	0.00	0.01	0.00	0.16	0.56	0.53	0.16
Gender	Female	0.49	0.51	0.54	0.54	0.53	0.52	0.13	0.15	0.33
Gender	Male	0.49	0.48	0.45	0.46	0.46	0.71	0.22	0.29	0.32
Gender	Non-binary/ third gender	0.02	0.01	0.01	0.00	0.02	0.20	0.20	0.04	0.95
Ethnicity	Hispanic	0.11	0.09	0.11	0.10	0.09	0.36	0.95	0.60	0.31
Race	White	0.81	0.78	0.80	0.82	0.82	0.36	0.85	0.59	0.71
Race	Black	0.14	0.16	0.13	0.11	0.11	0.45	0.65	0.33	0.29
Race	American Indian	0.00	0.01	0.01	0.02	0.01	0.41	0.42	0.11	0.52
Race	Asian	0.03	0.04	0.03	0.03	0.04	0.58	0.82	0.80	0.38
Race	Hawaiian or Pacific Islander	0.00	0.00	0.01	0.00	0.01	1.00	0.18	0.32	0.47
Race	Other	0.02	0.01	0.03	0.01	0.01	0.59	0.50	0.60	0.62
Region	Northeast	0.21	0.14	0.19	0.20	0.20	0.01	0.45	0.67	0.80
Region	South	0.40	0.45	0.38	0.44	0.35	0.14	0.60	0.24	0.20
Region	Midwest	0.20	0.21	0.20	0.19	0.25	0.75	0.79	0.75	0.05
Region	West	0.20	0.20	0.23	0.18	0.19	0.88	0.27	0.48	0.82
Income	Less than $10,000	0.04	0.05	0.04	0.03	0.06	0.24	0.50	0.91	0.16
Income	$10,000-$19,999	0.06	0.05	0.06	0.07	0.07	0.76	0.80	0.62	0.40
Income	$20,000-$29,999	0.11	0.11	0.11	0.09	0.09	0.67	0.86	0.38	0.41
Income	$30,000-$39,999	0.11	0.07	0.11	0.11	0.08	0.02	0.95	0.79	0.15
Income	$40,000-$49,999	0.12	0.09	0.10	0.12	0.10	0.18	0.42	0.95	0.31
Income	$50,000-$59,999	0.11	0.11	0.11	0.14	0.07	0.92	0.86	0.18	0.12
Income	$60,000-$69,999	0.05	0.07	0.07	0.07	0.07	0.21	0.34	0.28	0.33
Income	$70,000-$79,999	0.07	0.08	0.08	0.08	0.11	0.71	0.93	0.75	0.12
Income	$80,000-$89,999	0.05	0.04	0.04	0.03	0.06	0.86	0.85	0.24	0.54
Income	$90-000-$99,999	0.05	0.08	0.05	0.03	0.07	0.03	0.90	0.34	0.12
Income	$100,000-$149,999	0.13	0.12	0.12	0.16	0.12	0.67	0.64	0.19	0.77
Income	$150,000-$199,999	0.07	0.06	0.06	0.04	0.06	0.33	0.39	0.10	0.46
Income	$200,000+	0.04	0.05	0.04	0.03	0.04	0.34	0.76	0.25	0.99
Education	Less than high school	0.02	0.02	0.02	0.00	0.03	0.63	0.62	0.00	0.85
Education	High school	0.19	0.21	0.22	0.21	0.16	0.46	0.44	0.66	0.19
Education	Some college	0.22	0.25	0.25	0.26	0.29	0.24	0.37	0.22	0.04

Education	2-year degree	0.12	0.11	0.10	0.10	0.11	0.52	0.21	0.24	0.64
Education	4-year degree	0.29	0.25	0.26	0.25	0.28	0.24	0.49	0.33	0.80
Education	Professional degree	0.13	0.14	0.13	0.15	0.13	0.70	0.96	0.32	0.88
Education	Doctorate	0.03	0.02	0.03	0.03	0.01	0.36	0.71	0.66	0.09
Residence	Own residence (outright)	0.31	0.26	0.26	0.30	0.31	0.07	0.07	0.61	0.99
Residence	Own residence (mortgage)	0.33	0.34	0.34	0.30	0.30	0.58	0.58	0.50	0.41
Residence	Rent residence	0.32	0.35	0.36	0.35	0.35	0.32	0.21	0.43	0.37
Residence	Prefer not to say	0.04	0.04	0.03	0.05	0.03	0.61	0.83	0.38	0.79
Relationship	Never married	0.33	0.34	0.34	0.31	0.34	0.90	0.74	0.47	0.89
Relationship	Now married	0.46	0.45	0.44	0.49	0.45	0.56	0.55	0.56	0.78
Relationship	Separated	0.01	0.02	0.02	0.03	0.02	0.56	0.29	0.11	0.37
Relationship	Divorced	0.14	0.15	0.12	0.12	0.11	0.71	0.33	0.46	0.19
Relationship	Widowed	0.04	0.04	0.06	0.04	0.07	0.74	0.10	0.96	0.06
Relationship	Prefer not to say	0.01	0.01	0.01	0.02	0.01	0.74	0.73	0.55	0.65
Children	Yes	0.54	0.55	0.56	0.56	0.53	0.56	0.42	0.41	0.79
Children	No	0.46	0.43	0.43	0.43	0.46	0.47	0.46	0.48	0.96
Children	Prefer not to say	0.01	0.01	0.01	0.01	0.02	0.53	0.70	0.54	0.36
Financial literacy	0-3 questions (Avg)	1.93	1.90	1.89	1.97	1.88	0.68	0.62	0.53	0.50
Has insurance	Yes	0.87	0.83	0.85	0.89	0.85	0.13	0.41	0.55	0.40
Device used	Desktop or laptop	0.51	0.47	0.51	0.52	0.48	0.21	0.89	0.89	0.34
Device used	Tablet	0.07	0.06	0.06	0.06	0.07	0.57	0.55	0.60	0.88
Device used	Mobile	0.42	0.47	0.44	0.42	0.45	0.12	0.62	0.86	0.34
Device used	Other	0.00	0.00	0.00	0.00	0.00	1.00	0.32	0.32	0.32

C.2 BALANCE TABLES FOR EXPERIMENT 2

Figure C2

EXPERIMENT 2 BALANCE TABLE: COMPARING MAKE IT RELEVANT (PROTOTYPE 1) AND MAKE IT RELEVANT WITH VIDEO (PROTOTYPE 2)

Overall (N=771)				
Balance Table				
Variable	Variable Label	Prototype 1 (P1) Proportion	Prototype 2 (P2) Proportion	P1 vs. P2 p-value
Age	18-24	0.02	0.02	0.81
Age	25-34	0.04	0.06	0.17
Age	35-44	0.10	0.12	0.29
Age	45-54	0.13	0.13	0.94
Age	55-64	0.24	0.24	0.83
Age	65-74	0.33	0.30	0.43
Age	75-84	0.14	0.12	0.38
Age	85+	0.01	0.01	0.55
Gender	Female	0.60	0.51	0.01
Gender	Male	0.40	0.49	0.01
Gender	Non-binary/ third gender	0.00	0.00	-
Ethnicity	Hispanic	0.06	0.04	0.14
Race	White	0.88	0.86	0.48
Race	Black	0.07	0.09	0.43
Race	American Indian	0.01	0.01	0.73
Race	Asian	0.02	0.03	0.84
Race	Hawaiian or Pacific Islander	0.00	0.00	0.16
Race	Other	0.01	0.02	0.86
Region	Northeast	0.21	0.19	0.52
Region	South	0.36	0.38	0.52
Region	Midwest	0.24	0.24	0.95
Region	West	0.20	0.19	0.83
Income	Less than $10,000	0.04	0.04	0.79
Income	$10,000-$19,999	0.08	0.08	0.90
Income	$20,000-$29,999	0.10	0.09	0.68
Income	$30,000-$39,999	0.11	0.11	0.98
Income	$40,000-$49,999	0.09	0.08	0.59
Income	$50,000-$59,999	0.08	0.12	0.10
Income	$60,000-$69,999	0.09	0.04	0.01
Income	$70,000-$79,999	0.06	0.07	0.55
Income	$80,000-$89,999	0.04	0.07	0.12
Income	$90-000-$99,999	0.04	0.04	0.63
Income	$100,000-$149,999	0.14	0.15	0.74
Income	$150,000-$199,999	0.07	0.04	0.07
Income	$200,000+	0.05	0.07	0.40
Education	Less than high school	0.02	0.01	0.39
Education	High school	0.18	0.15	0.28

Education	Some college	0.17	0.24	0.02
Education	2-year degree	0.12	0.11	0.63
Education	4-year degree	0.32	0.30	0.65
Education	Professional degree	0.16	0.18	0.48
Education	Doctorate	0.04	0.02	0.06
Residence	Own residence (outright)	0.42	0.40	0.59
Residence	Own residence (mortgage)	0.33	0.31	0.53
Residence	Rent residence	0.23	0.27	0.23
Residence	Prefer not to say	0.02	0.02	0.81
Relationship	Never married	0.21	0.24	0.24
Relationship	Now married	0.50	0.48	0.50
Relationship	Separated	0.01	0.02	0.65
Relationship	Divorced	0.16	0.18	0.52
Relationship	Widowed	0.11	0.08	0.14
Relationship	Prefer not to say	0.00	0.00	0.73
Children	Yes	0.60	0.57	0.40
Children	No	0.39	0.43	0.36
Children	Prefer not to say	0.00	0.00	0.32
Financial literacy	0-3 questions (Avg)	2.21	2.13	0.27
Has insurance	Yes	0.92	0.92	0.98
Device used	Desktop or laptop	0.67	0.65	0.58
Device used	Tablet	0.06	0.08	0.42
Device used	Mobile	0.26	0.27	0.91
Device used	Other	0.00	0.00	-

Figure C3

EXPERIMENT 2 BALANCE TABLE: COMPARING MAKE IT EASY (PROTOTYPE 1) AGAINST MAKE IT EASY WITH HUMAN-FEATURED VIDEO (PROTOTYPE 2), AND AI-FEATURED VIDEO (PROTOTYPE 3)

Overall (N=1,234)						
Balance Table						
Variable	Variable Label	Prototype 1 (P1) Proportion	Prototype 2 (P2) Proportion	Prototype 3 (P3) Proportion	P1 vs. P2 p-value	P1 vs. P3 p-value
Age	18-24	0.02	0.01	0.01	0.13	0.11
Age	25-34	0.07	0.05	0.08	0.30	0.60
Age	35-44	0.10	0.11	0.17	0.39	0.00
Age	45-54	0.10	0.13	0.12	0.19	0.48
Age	55-64	0.24	0.25	0.27	0.91	0.33
Age	65-74	0.33	0.30	0.25	0.39	0.01
Age	75-84	0.14	0.13	0.10	0.72	0.11
Age	85+	0.01	0.02	0.01	0.09	0.62
Gender	Female	0.61	0.52	0.55	0.01	0.07
Gender	Male	0.39	0.48	0.44	0.01	0.10
Gender	Non-binary/ third gender	0.00	0.00	0.01	0.32	0.28
Ethnicity	Hispanic	0.04	0.05	0.06	0.63	0.16
Race	White	0.87	0.86	0.83	0.51	0.10
Race	Black	0.08	0.08	0.10	0.79	0.36
Race	American Indian	0.00	0.01	0.01	0.27	0.28
Race	Asian	0.02	0.03	0.03	0.10	0.25
Race	Hawaiian or Pacific Islander	0.00	0.00	0.00	-	0.32
Race	Other	0.03	0.03	0.03	0.79	0.80
Region	Northeast	0.18	0.20	0.22	0.48	0.14
Region	South	0.41	0.33	0.36	0.01	0.12
Region	Midwest	0.22	0.22	0.25	0.87	0.27
Region	West	0.19	0.25	0.17	0.05	0.44
Income	Less than $10,000	0.03	0.03	0.04	0.68	0.53
Income	$10,000-$19,999	0.08	0.07	0.08	0.75	0.68
Income	$20,000-$29,999	0.11	0.11	0.10	0.99	0.45
Income	$30,000-$39,999	0.13	0.12	0.11	0.83	0.39
Income	$40,000-$49,999	0.11	0.07	0.09	0.02	0.44
Income	$50,000-$59,999	0.10	0.10	0.08	0.95	0.34
Income	$60,000-$69,999	0.08	0.08	0.08	0.90	0.92
Income	$70,000-$79,999	0.06	0.07	0.04	0.48	0.14
Income	$80,000-$89,999	0.03	0.03	0.05	0.56	0.12
Income	$90-000-$99,999	0.04	0.04	0.03	0.66	0.76
Income	$100,000-$149,999	0.14	0.16	0.19	0.54	0.08
Income	$150,000-$199,999	0.04	0.07	0.06	0.12	0.34
Income	$200,000+	0.05	0.04	0.06	0.53	0.85
Education	Less than high school	0.01	0.01	0.01	0.86	0.80
Education	High school	0.21	0.14	0.19	0.02	0.56

Education	Some college	0.24	0.23	0.23	0.78	0.98
Education	2-year degree	0.14	0.10	0.12	0.05	0.39
Education	4-year degree	0.25	0.33	0.24	0.01	0.87
Education	Professional degree	0.13	0.16	0.18	0.17	0.03
Education	Doctorate	0.03	0.03	0.02	0.97	0.69
Residence	Own residence (outright)	0.38	0.39	0.34	0.75	0.17
Residence	Own residence (mortgage)	0.32	0.32	0.36	0.92	0.28
Residence	Rent residence	0.28	0.25	0.29	0.30	0.90
Residence	Prefer not to say	0.01	0.03	0.02	0.09	0.48
Relationship	Never married	0.20	0.22	0.22	0.54	0.52
Relationship	Now married	0.51	0.50	0.47	0.83	0.25
Relationship	Separated	0.02	0.02	0.02	0.48	0.98
Relationship	Divorced	0.16	0.17	0.20	0.55	0.12
Relationship	Widowed	0.10	0.08	0.09	0.39	0.47
Relationship	Prefer not to say	0.01	0.01	0.00	0.78	0.35
Children	Yes	0.64	0.57	0.57	0.03	0.03
Children	No	0.36	0.43	0.42	0.02	0.04
Children	Prefer not to say	0.00	0.00	0.01	0.32	0.28
Financial literacy	0-3 questions (Avg)	2.13	2.19	2.17	0.38	0.50
Has insurance	Yes	0.92	0.91	0.91	0.43	0.59
Device used	Desktop or laptop	0.63	0.64	0.63	0.62	0.96
Device used	Tablet	0.08	0.09	0.09	0.59	0.58
Device used	Mobile	0.29	0.27	0.28	0.38	0.75
Device used	Other	0.00	0.00	0.00	0.91	0.32

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