

Papers

Using behavioural science to reduce opportunistic insurance fraud

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Abstract Undetected, opportunistic fraud in the form of dishonest or exaggerated information in applications, renewal or claims processes is estimated to cost the UK insurance industry up to £1bn per year. This paper reports on research commissioned by the Insurance Fraud Bureau, in which two online randomised controlled trial experiments were run to test ways of tackling this problem. Both of the experiments involved the application of behavioural science to create short consumer-facing messages, one in an above-the-line advertising context, and the other in an online insurance claims or application context. Results showed the majority of messages to work better than controls for both experiments, improving perceptions and changing behaviour. The results have enormous implications for the insurance industry, and learnings for marketing and insights professionals more broadly. For the former, correct application of these experiments' findings could improve industry perceptions, and significantly improve revenues by avoiding falsified applications and inflated claims. Expertise is needed to ensure the findings are applied in the right way across an insurer's potentially multi-channel application and claims processes. For the latter, the study demonstrates the importance of context in the use of behavioural science and the need for the appropriate testing of customer communications.

KEYWORDS: behavioural science, nudges, randomised controlled trials, operational communications, above-the-line communications, opportunistic fraud, interventions

INTRODUCTION

Opportunistic insurance fraud occurs when an ‘everyday’ insurance customer makes an exaggeration on their application or claim (for example, exaggerating the value of stolen items). It typically entails a small benefit to the customer and is unplanned, and therefore differs from serious, premeditated insurance fraud carried out by organised criminal gangs. As a rule, the customers committing this kind of opportunistic fraud either do not realise it is a crime, or consider it a so-called ‘victimless crime’. This, of course, is part of the problem: for as long as the idea that such fraud is victimless continues to endure, it will contribute to the behaviour. The truth is, insurance fraud affects both insurance companies and customers: it costs the UK insurance industry an estimated £1bn per year,¹ in turn increasing insurance premiums for all customers.

The Insurance Fraud Bureau (IFB), representing the insurance industry in the UK in the fight against all types of insurance fraud, wanted to understand how customer marketing and communications could help prevent this. The starting point for exploring how this could be achieved was to articulate what the problem was (the behaviour) and the circumstances contributing to the problem.

Understanding the problem

Opportunistic insurance fraud occurs when information provided in claims or applications (or similar processes such as insurance renewals or mid-term adjustments) is falsified or exaggerated. For claims, this typically means the value of the claim is inflated, or claims are made for items that should not be included. For applications, it is exaggerations or lies made to questions that will impact on the cost of the insurance premium. For example, with motor insurance, some customers claim the main driver is someone else with

a lower risk profile (eg a teenager claiming their parent is the main driver), an action known as fronting. The first step, then, was to identify questions within claims and applications processes where lies or exaggerations could be made — that is, to identify the points at which opportunistic fraud occurs.

The second step was to consider why such lies and exaggerations were occurring in the first place. Reviewing existing research on the topic revealed a number of untrue beliefs customers often hold about the insurance industry — the insurance ‘myths’ mentioned above. As well as not realising the lies or exaggerations were a crime, or perceiving the crime to be victimless, such beliefs include ‘insurers are the enemy who try to avoid paying out’, ‘everyone does it’, ‘mistakes will happen’, ‘it’s difficult to get caught’, and ‘it’s not a serious offence’.²

Tackling the problem with behavioural science

By understanding both the point at which the problem occurs (the behaviour) and the underlying cause (the beliefs), a behavioural framework may be constructed to tackle the problem. Simply put: if you can change the beliefs then you can change the behaviour.

To change beliefs regarding insurance fraud, the authors drafted a number of messages informed by behavioural science principles. These messages were to be applied in two ways identified previously by the IFB: (i) with explicit above-the-line (ATL) messaging, and (ii) with operational messaging in the form of subtle behavioural ‘nudges’ (interventions) in claims and applications processes. ATL messaging is that which is directed towards the mass market, and therefore with messages that tend to be general and non-targeted; in contrast, operational messages are sent directly to customers as part of day-to-day services, which

Table 1: Behavioural principles underlying message design

Principle	People ...	Example application
Priming	... are influenced by subtle cues	Heighten sensitivity of seriousness with the use of authority (police) logos
Framing	... make judgments relative to reference points and frames	Debunk myth of 'victimless crime' by presenting the negative consequences of lying/exaggerating
Self-consistency	... like to be consistent with past behaviour and beliefs about self	Have the honest declaration (typically at the end of forms) at the beginning
Norming	... are affected by social norms and social cues	Debunk myth of 'everyone is doing it' by providing statistics of honest form completion
Reciprocation	... reciprocate trust and favours	Debunk myth of 'insurers are the enemy' by having up-front honesty pledge by insurer

may include quotes, welcome e-mails or payment confirmations, and in the case of this experiment, within online application and claims forms.

To inform the messages, the authors conducted a review of the literature to identify the principles for influencing behaviour. Having identified five key principles, the authors considered how to apply these principles in order to alter individual beliefs. For example, the belief that 'everyone is doing it' relies on the principle of 'norming' — people seek to behave like their peers, so if 'everyone else is doing it' then they will too. In this instance, a simple message explaining that most people are honest and accurate when completing claims or applications may help to change the erroneous belief.

Table 1 summarises the 18 messages that were created for the five principles, and describes example applications.

RESEARCH DESIGN

Overview

To test whether messaging could alter both the beliefs underpinning opportunistic insurance fraud as well as the fraudulent behaviours themselves, two approaches were proposed: (1) explicit ATL messaging, and

(2) operational messaging in the form of subtle behavioural 'nudges' in claims and applications processes.

These two approaches work in different ways. ATL messaging is designed to be noticed and has the goal of raising awareness and changing any erroneous beliefs. Such changes may take time through repeated exposure, but are intended to have a lasting impact on people's beliefs. By contrast, messages used in operational processes, such as claims and applications, act as nudges and are not designed to be noticed, nor to necessarily change beliefs in the long term. Instead they are designed to change behaviour at that specific point in time. To test these approaches, two online experiments were designed and run; these will be referred to as the ATL Comms Experiment and the Operational Comms Experiment.

ATL Comms Experiment

The ATL Comms Experiment entailed an online survey in which participants were presented with a mocked-up poster, which in practice could be used as a press or out-of-home advertisement. The poster contained an image of traffic



Figure 1: ATL Comms Experiment example poster (norming message)

at night-time, the IFB logo and a headline saying ‘insurance fraud is a serious crime’ followed by one of the test messages (or no message in the control condition). Figure 1 shows an example condition with one of the messages used under the ‘norming’ principle.

Participants were then asked to rate the extent to which they agreed or disagreed with a series of statements, presented in a random order, in relation to the poster, covering aspects such as relevance, clarity, perceptions of the industry, and likelihood to act in response to the poster (‘intention to act’). The full list of perceptions captured can be seen in Table 2. Information on the participants’ insurance products, demographics and attitudes were also collected in the survey, so that they could be included in subsequent analyses.

The ATL Comms Experiment was run in the UK on 1,033 adults who were motor insurance customers. A between-participants design was employed, such that each participant saw and rated just one randomly selected poster from a total of 17 conditions (the control condition and 16 test conditions, each with one message). Messages were the same as those included in the Operational Comms Experiment (see below), except for the exclusion of any that did not work in an ATL format (and with the addition of a new message specifically tackling the myth of ‘mistakes will happen’).

Operational Comms Experiment

The Operational Comms Experiment was run separately from the ATL Comms

Table 2: Perception statements following presentation of poster

Perception	Example statements
Attention	It was a distinctive poster
Relevance	The poster was targeted at people like me
Clarity	It was very clear what was being promoted by the poster
Informative	I learnt something new from the poster
Credible	I believe what the poster was trying to say
Industry perception	The poster made me feel more favourable towards the insurance industry
Intention to act	I will think about the message in this advert in the future
	I may talk about the message in this advert with someone
	The poster persuaded me to consider ways in which to avoid insurance fraud

Experiment, and entailed participants completing an online survey containing a mocked-up motor insurance application or claims process (participants were randomly assigned to one or the other). Participants were presented with a scenario explaining that they were either making an application or a claim (for the latter they were asked to imagine their car had been broken into, with approximately £1,000 worth of items stolen), and asked to fill in the online form as they would in real life. In both cases, the online forms that participants went through were designed to replicate real-world forms.

To test the impact of any messaging, it was important for the online forms to include questions to which participants might lie or exaggerate in order to get a better deal for themselves (the ‘contentious question’). The contentious question needed to be one that could realistically be asked in an online application or claims form, but also one that related to a reasonably high prevalence behaviour. The question ‘have you ever been caught speeding?’ was therefore chosen, and included in the forms and presented along with a series of other questions so as not to stand out. An operational comms message (the ‘nudge’, or ‘intervention’) was then presented as a pop-up message just before this series of questions (with no pop-up message in the control condition). Figure 2 shows an example pop-up message.

Another crucial aspect of the research design was to understand the genuine underlying prevalence of speeding so that the rate of lying in the experiment could be understood. In order to do this, the unmatched count technique (UCT)³ was used. The UCT works by taking two samples of respondents and presenting each respondent of one sample with a set of statements and asking simply how many of the statements hold true for them (eg ‘I have been to France’, ‘I ate a chocolate bar today’, etc). The second sample is then presented with exactly the same task and

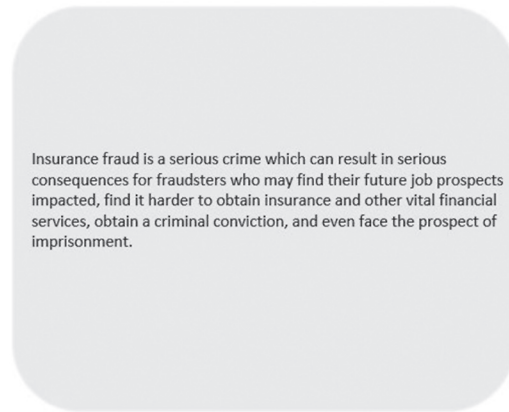


Figure 2: Example pop-up message from Operational Comms Experiment (framing message)

statements, except with the addition of the ‘contentious’ statement of interest (in the present case, ‘I have been caught speeding’). With some simple maths, comparing the mean values of the two samples, the prevalence of the contentious statement being true may be calculated.

By understanding the underlying prevalence of speeding, the proportion of people lying in the control condition (the standard application or claims process outlined above, with no interventions included) could be calculated. In turn, the impact of any intervention in reducing the rate of lying could be calculated by comparing it with these figures.

Note that it was not possible to know for certain whether any given participant had lied about not speeding, and instead these calculations were made at an aggregated condition level. The experiment thus adopted a between-participants design and needed a large sample size. In total, 12,216 participants were involved in the study, all of them adults in the UK and current motor insurance customers.

As well as capturing responses to the task, participants were also asked about their perceptions of the process they went through and towards the insurer as a result. In addition, the details of the participants’ current insurance products, demographics

and attitudes were captured to control for and include in subsequent analyses.

RESULTS

Overview

Appropriate statistical analyses were conducted on the data, with statistical significance reported at $p < 0.05$. For the ATL Comms Experiment, perception ratings of the poster were calculated as average scores across the statements for each metric, with scores linearly scaled from 0 to 100 (with 50 therefore representing a neutral score). Scores by condition were modelled using a linear regression with the score as the dependent variable and experimental conditions as the independent variables, alongside demographics and personality traits to control for these and remove any potential sampling bias. An aggregated measure, taking the mean across all perceptions was also calculated.

For the Operational Comms Experiment, the main metric was the percentage of dishonesty swayed by each behavioural intervention. This was calculated relative to a control condition where no intervention was shown. To remove any sampling bias, a binary logistic regression was used to predict whether or not the respondent admitted having been caught speeding (ie the response to the contentious question was the dependent variable) with the experimental conditions as the key independent variables, alongside participant demographics and personality traits.

ATL Comms Experiment

The ATL Comms Experiment highlighted differences in the ways in which the messages were being perceived. As might be expected, almost all of the messages were perceived to be statistically significantly more informative than the control. Messages based on the principle of reciprocity were statistically significantly more relevant than the control. The control condition typically

came well below average on all metrics, with the exception of attention. However, grabbing attention is typically dependent on the creative vehicle used (ie images, fonts, etc) and given that the posters were visually identical except for the messages, this result is not surprising.

Overall, based on the aggregated perceptions measure (see Table 3), 13 of the 16 tested messages outperformed the control, with the top two statistically significantly doing so. The top two messages comprised one detailing how fraud causes premiums to rise for customers (under the principle of reciprocity), and one highlighting what happens to people who get caught (norming). The very best message overall (reciprocity) scored particularly well on the perceptions of relevance and informative, and had no real weaknesses (see Figure 3).

Operational Comms Experiment

The key analysis of the Operational Comms Experiment was examining the impact of the behavioural interventions on responses to the contentious question. Results showed the presence of an intervention to have a strong and hugely statistically significant impact on promoting honesty (ie when preceded by an intervention pop-up message, participants were much more likely to be honest and admit to speeding than when one was not presented). On average, including an intervention prompted a reduction in lying of 36 per cent among those going through an application and 37 per cent among those making a claim (see Table 4).

Differences were observed in the success rates of different interventions, with those applying the principle of norming being particularly successful. Those applying the principle of reciprocity, while still impactful, were relatively less successful. The top-performing intervention was one highlighting that most people complete forms honestly (norming), with an average reduction in dishonesty across both the

Table 3: Aggregated perception scores for messages tested in ATL Comms Experiment

Message	Metric average (0-100)	Experiment rank
Reciprocation — Fraud causing higher premium	60.3	15
Norming — Case study of being caught (application)	59.8	2
Norming — Case study of being caught (claims)	59.4	2
Norming — Example of how fraud is a crime (application)	58.8	11
Self-consistency — Telling people they will be honest (application)	58.8	7
Norming — Fraud is a crime/how to avoid (claims)	58.4	3
Norming — Fraud is a crime/how to avoid (application)	58.3	3
Norming — Example of how fraud is a crime (claims)	58.2	11
Framing — Negative consequences	58.2	4
Priming — Authority logos (police)	58.0	12
Norming — Agency investigating fraud	57.2	5
Self-consistency — Telling people they will be honest (claims)	57.2	7
Norming — Techniques investigating fraud	57.0	6
Control	56.3	–
Reciprocation — Statistics on claims paid out	56.1	14
Norming -Statistics on others' honesty	55.5	1
Myth — Mistakes will happen	54.3	–

Note: Scores statistically significant from the control, at $p < .05$, highlighted in bold.

application and claims processes of 65 per cent (this intervention is shown in Figure 4).

As well as examining the impact of interventions on honesty, analysis was also conducted to determine whether there was any impact on perceptions of the insurer and of the process the participant had gone through. This was important, as

the aim of the interventions was to behave as imperceptible 'nudges', and not to be overtly noticed and affect how the customer views the insurer (as in practice an insurer would want to avoid any unwanted side effects such as reduced customer retention or acquisition). This analysis showed that the interventions did not have a material



Figure 3: Top-performing message from ATL Comms Experiment (based on the principle of reciprocation)

Table 4: Lying reduction in application and claim scenarios for messages tested in Operational Comms Experiment

Domain	Intervention	Lying reduction (%)	
		Application	Claim
Norming	Statistics on others' honesty	55	74
	Case study of being caught	47	71
	Fraud is a crime/how to avoid	53	54
	Agency investigating fraud	44	50
	Techniques investigating fraud	44	50
	Example of how fraud is a crime	45	33
Self-consistency	Telling people they will be honest	30	63
	Honesty declaration at the top	44	41
Priming	Direct appeal to honesty	38	48
	Authority logos (police)	33	43
	Honesty words	46	25
Framing	Negative consequences	48	53
	Human/friendly tone	-2	27
Reciprocation	Someone affected by fraud	36	44
	Statistics on claims paid out	48	15
	Fraud causing higher premium	22	20
	Lemonade charity approach	14	16
	Insurer honesty pledge	15	5
	Average intervention	36	37

Note: Scores statistically significant from the control, at $p < .05$, highlighted in bold.

Did you know?

95% of insurance customers fill in their forms fairly and accurately, and make honest insurance claims – **be one of them.**

Figure 4: Top-performing intervention from Operational Comms Experiment (based on the principle of norming)

impact on perceptions (in fact, the average intervention achieved a marginally higher score than when no intervention was shown), with similar scores achieved irrespective of condition.

Comparison of results from comms approaches

As discussed, the ATL Comms Experiment messaging and Operational Comms Experiment interventions operate in fundamentally different ways. ATL comms are used to attempt to change perceptions and attitudes (permanently) and in practice requires reinforcement to succeed. By contrast, operational comms interventions are used to change behaviour at a specific point in time, with perhaps little implication for long-term attitudes and perceptions.

Comparing the results from the two experiments showed no clear (statistically significant) relationship between messages that worked well as an ATL comms message versus as an operational comms intervention.

Given the aforementioned differences in the way that the messages operate it would not necessarily be expected that they would work in the same way. In fact, different messages working better in each context is desirable in order for interventions to work as imperceptible nudges within operational processes (ie using a message in the ATL comms that is the same as an operational comms intervention would make the latter more salient).

CONCLUSION

Overall, the two experiments produced strong and clear findings, with the application of behavioural science-inspired messages proving effective in both ATL comms and operational comms, and a distinction between the comms approaches in terms of the most effective messages to use. However, this research marks the first step in understanding how to use such messages effectively in the real world, with a number of limitations that should be discussed, as well as learnings for insurance professionals and those involved in marketing and related fields more broadly.

RESEARCH LIMITATIONS

While the experiment results are promising, a clear limitation of both experiments is that they have not yet been tested in the real world. While there are no obvious reasons why results would not translate into the real world, this is an important caveat and highlights a next step, namely field trialling the ideas discussed here.

In the case of the Operational Comms Experiment, there are other limitations to consider. First, while the context is analogous (ie same insurance beliefs, questions in processes that may be lied or exaggerated to, and so forth), the experiment only tested the use of interventions on motor insurance.

Secondly, the experiment only tested application and claims processes, and not renewals or mid-term adjustments (although both of these processes are very similar to applications), or other customer touch points. Consideration of the appropriate use and placement of interventions in these other contexts is needed.

Finally, the experiment only tested the use of interventions via the online channel for applications and claims. While online is an important channel, in the real world there are other channels that are used either partly or exclusively by some customers. These include the use of telephone calls, as well as face-to-face. These alternative channels pose their own issues when considering how and where to apply interventions.

Implications of research for insurers

The findings from this study have direct relevance for insurers and show that, while the insurance industry has problems in terms of opportunistic fraud and customer perception of the industry, there are clear routes to solving these problems.

Notwithstanding the important limitations outlined above, there is evidence that ATL comms may be designed that help to improve customer perceptions of insurers. Even more importantly, given the sums of money involved that may be saved by insurers and, in turn, by honest customers, is the use of interventions in applications and claims processes. This research demonstrated that interventions can have strong and consistent positive impacts in promoting honesty and therefore reducing opportunistic fraud. Even a modest replication of these findings in the real world could collectively save the industry hundreds of millions of pounds each year, in the UK alone.

It is recommended that insurers start by field-trialling these approaches. To apply these findings effectively, it is important to have the expertise to audit an insurer's application and claims processes across the

various multi-channel processes in place, to design and select appropriate interventions, understand how they are working, and to ensure alignment with other areas of the business (eg call centres, compliance).

Implications for marketers and those in related fields

While the results clearly have direct relevance to those working for insurers, the ideas covered have broader implications for marketers and those looking to apply behavioural science. To begin with, they highlight the importance of considering how a company might plan to change consumer behaviour. For example, is the plan for a long-term change in attitudes (typical of brand advertising) or short-term behaviour (typical of trade advertising)? This study demonstrates the importance of tailoring the company's strategy, and the use of behavioural science, accordingly.

Secondly, the results highlight the importance of taking care when

extrapolating findings from behavioural science in one context and applying it to another (ie a principle or message or approach that works well in one context will not necessarily work well in another). In turn, this leads to the importance of testing. Much of marketing relies on assumptions and rules of thumb, and applying what has previously worked in one context to a whole new situation. It is important that these assumptions are tested to ensure money spent (eg on advertising) is providing the desired value.

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