

The background is a dark blue gradient with a subtle pattern of white dots. On the left side, there are several overlapping circular elements. One prominent feature is a large circular scale with tick marks and numbers ranging from 140 to 260. Other circles include dashed lines, solid lines, and arrows, suggesting a scientific or technical theme.

THE SCIENCE OF PERSUASION

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LION APP SUMMER SCHOOL, TRENTO ITALY, JULY 5-9, 2019

WHAT IS PERSUASION?

AN INTENTIONAL, COMMUNICATIVE ATTEMPT TO INFLUENCE ANOTHER PERSON (O'KEEFE, 2002)

Social Influence

Coercion

Persuasion

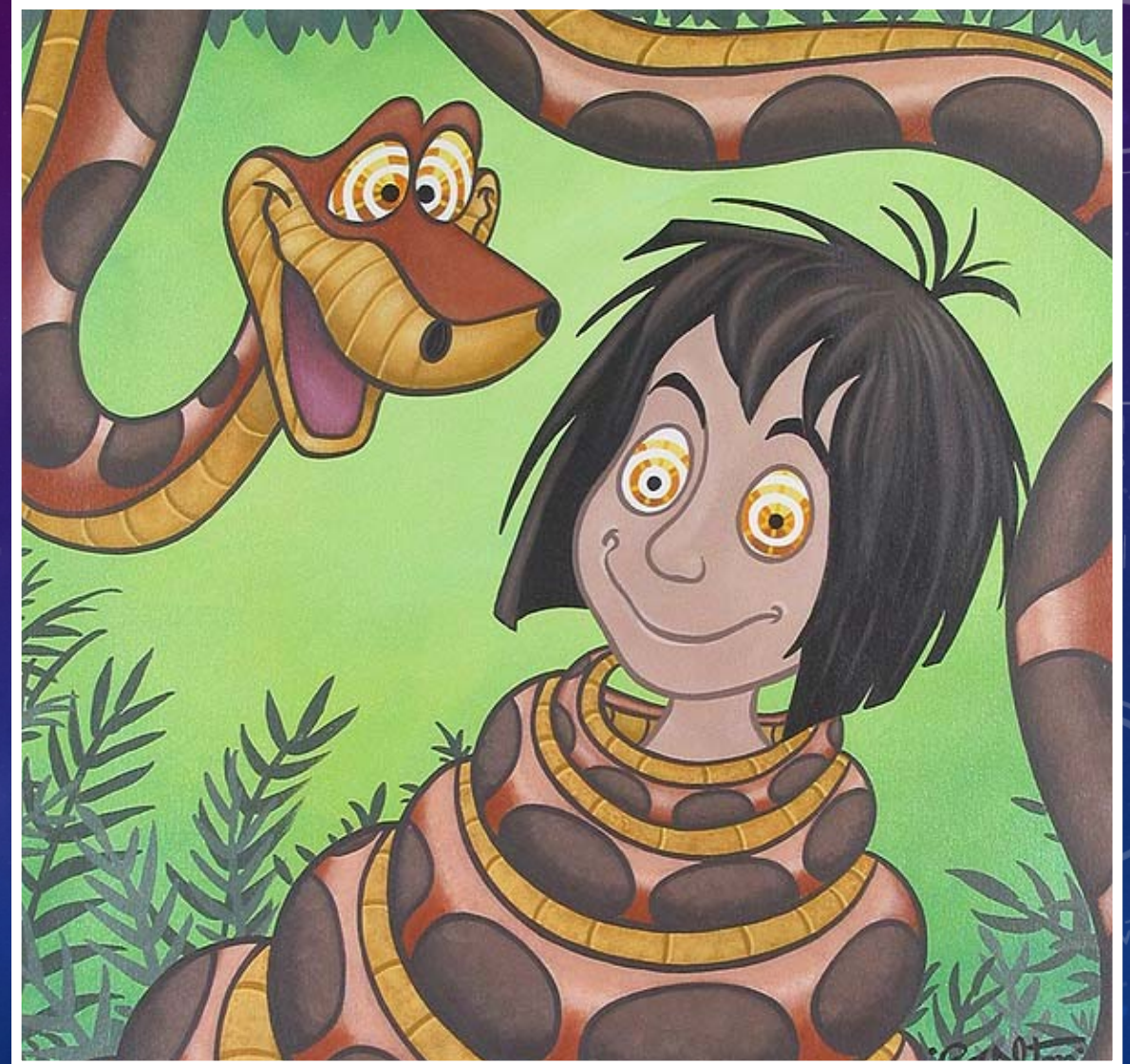
- Nature of Psychological Threat
- Ability to Do Otherwise
- Perception of Free Choice

Propaganda:

Mass influence over mass media

One group has total control over transmission of information

Associated with hostile intent



PERSUASION AS ATTITUDE CHANGE



Attitude = a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor (Eagly & Chaiken, 1993)



Attitude Strength – attitudes can vary in strength

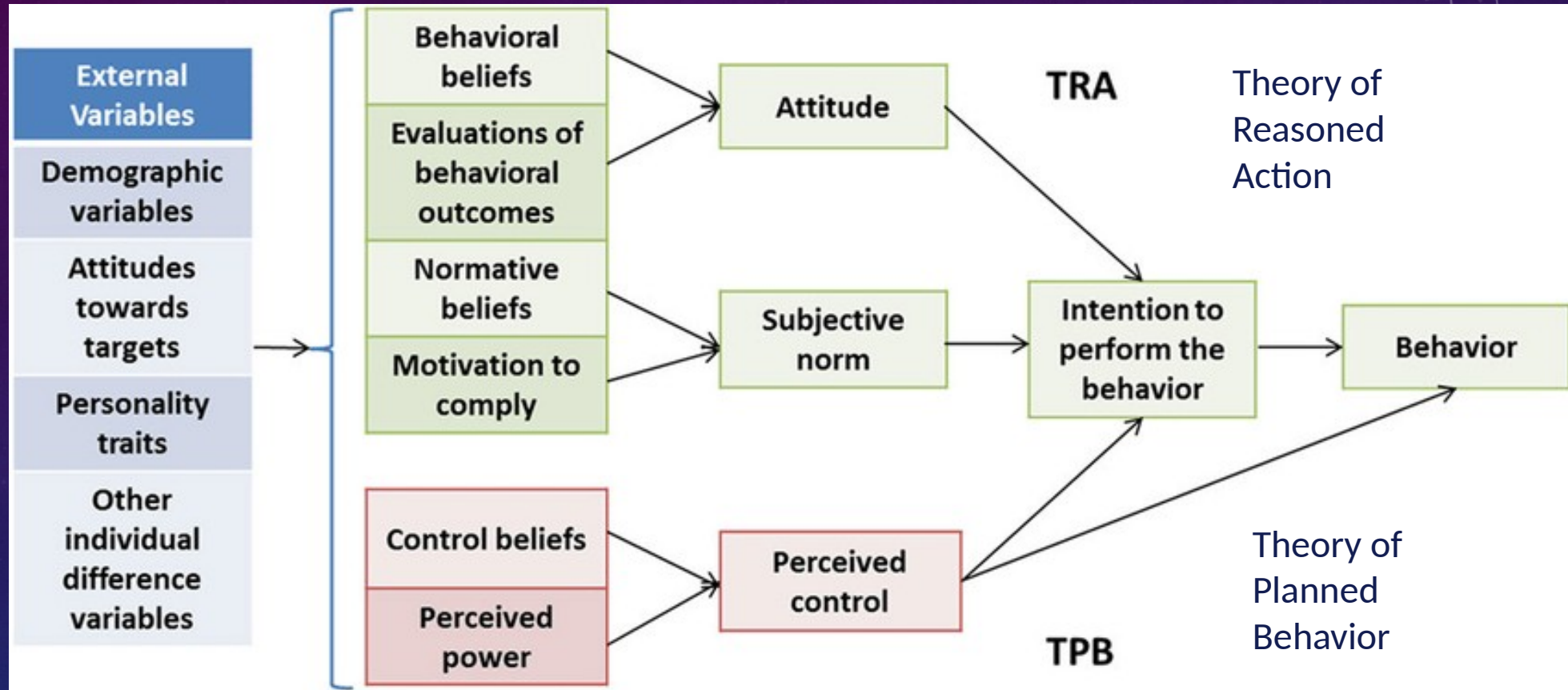


Attitudes can be formulated on the spot



Implicit vs. Explicit Attitudes

ATTITUDE - BEHAVIOR LINK



Ajzen, 1991

<https://www.youtube.com/watch?v=nZsxuD3gExE>

BEHAVIOR WITHOUT ATTITUDES

- Habit
- Social Learning Theory:
 - Imitation of others
 - Reinforcement through rewards or punishment





PERSUASIVE EFFECTS

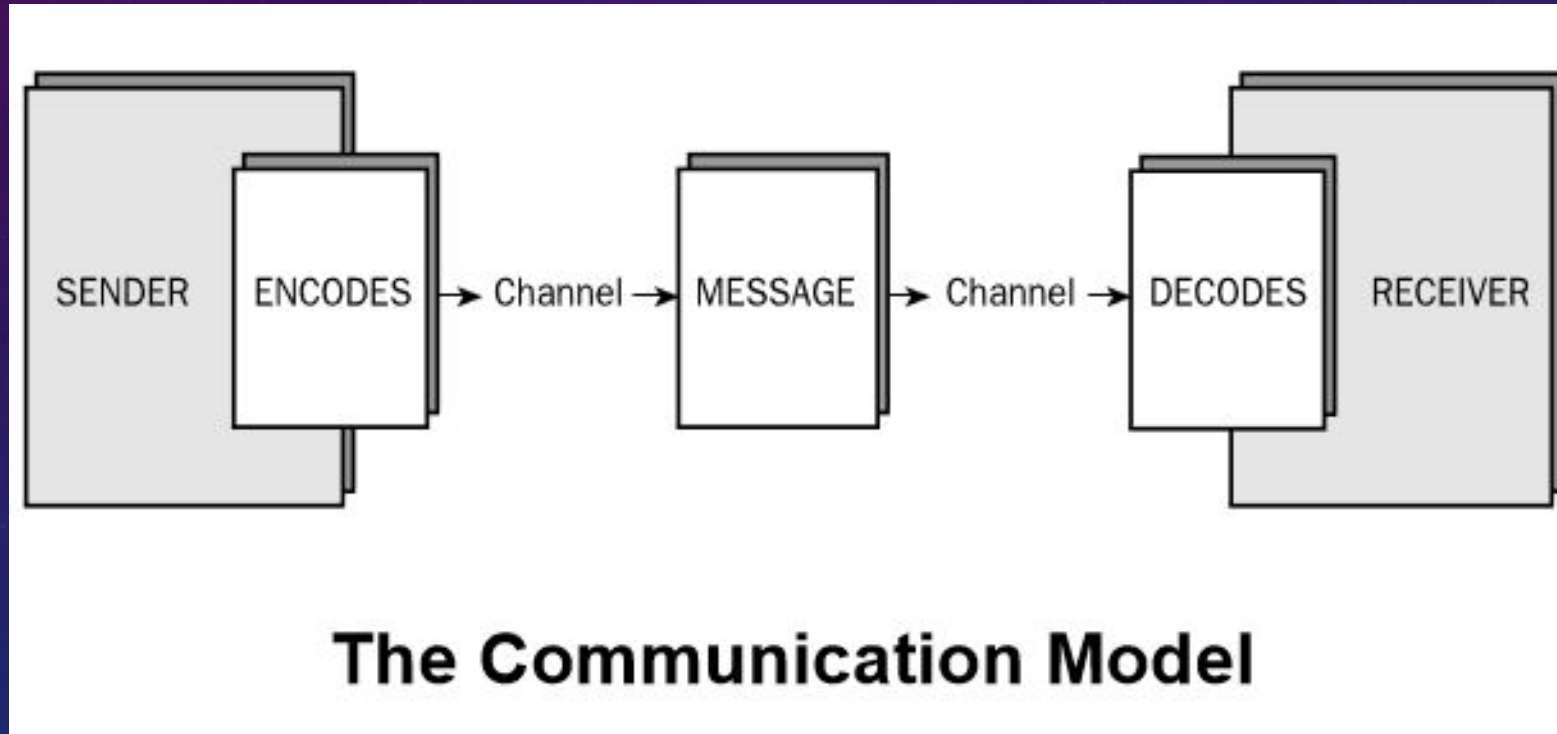
1. Shaping

2. Reinforcing

3. Changing

- Most communication seeks to influence attitudes in order to influence behavior
- Attitudes can also be influenced by changing behavior – consistency principle!

BASIC COMMUNICATION MODEL



RECEIVER

Resistance to Persuasion

Reactance occurs when a prospect senses that someone is trying to compel them to do something; they automatically resist and attempt to move away from the conversation.

<https://www.youtube.com/watch?v=RUw6BbGIAAnM>

Processing of Information

- Attention (Exposure)
- Motivation (Relevance/importance)
- Ability (Processing capacity/cognitive load, ability to understand)



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NAME _____

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CREDIT CARD _____

CREDIT CARD # _____

CREDIT CARD # _____

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NAME _____

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ADDRESS _____

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CITY / STATE / ZIP _____

E-MAIL _____

E-MAIL _____

CREDIT CARD _____

CREDIT CARD _____

CREDIT CARD # _____

CREDIT CARD # _____

I want the most out of life.

Canadian and foreign orders add \$10.00 U.S. funds to above prices.

Not intended for mailing.



HUMOR

- Attention
- Affiliation
- Affect

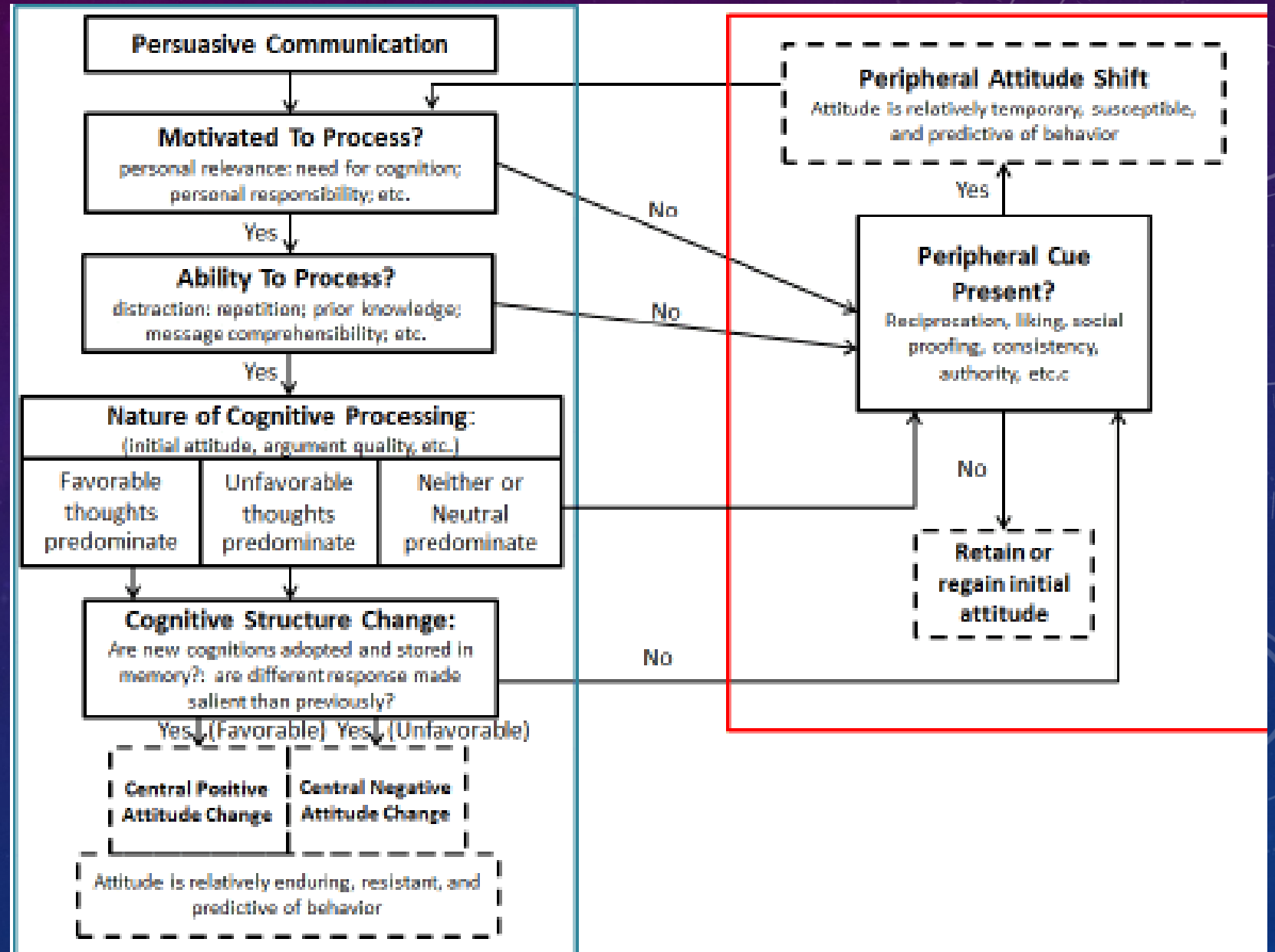
DO RECEIVERS HAVE TO CONSCIOUSLY PERCEIVE THE MESSAGE?

<https://www.youtube.com/watch?v=dSkKbIL4dY>

Priming works but has very short-lived effects

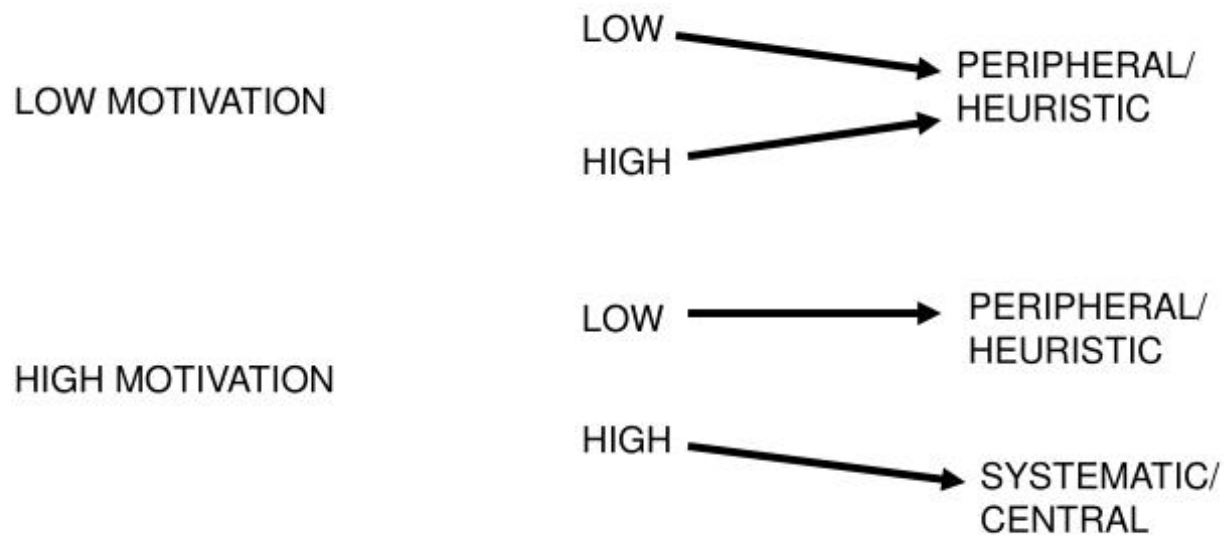


ELABORATION LIKELIHOOD MODEL (ELM)



ELM/Heuristic Systematic Model (Chaiken 1980)

MOTIVATION * ABILITY → PERSUASION



DUAL PROCESS MODELS OF PERSUASION

- Heuristic: mental shortcut (e.g. lawyers can't be trusted)
- Peripheral: cues beyond message argument
- Systematic/central: careful, deliberative

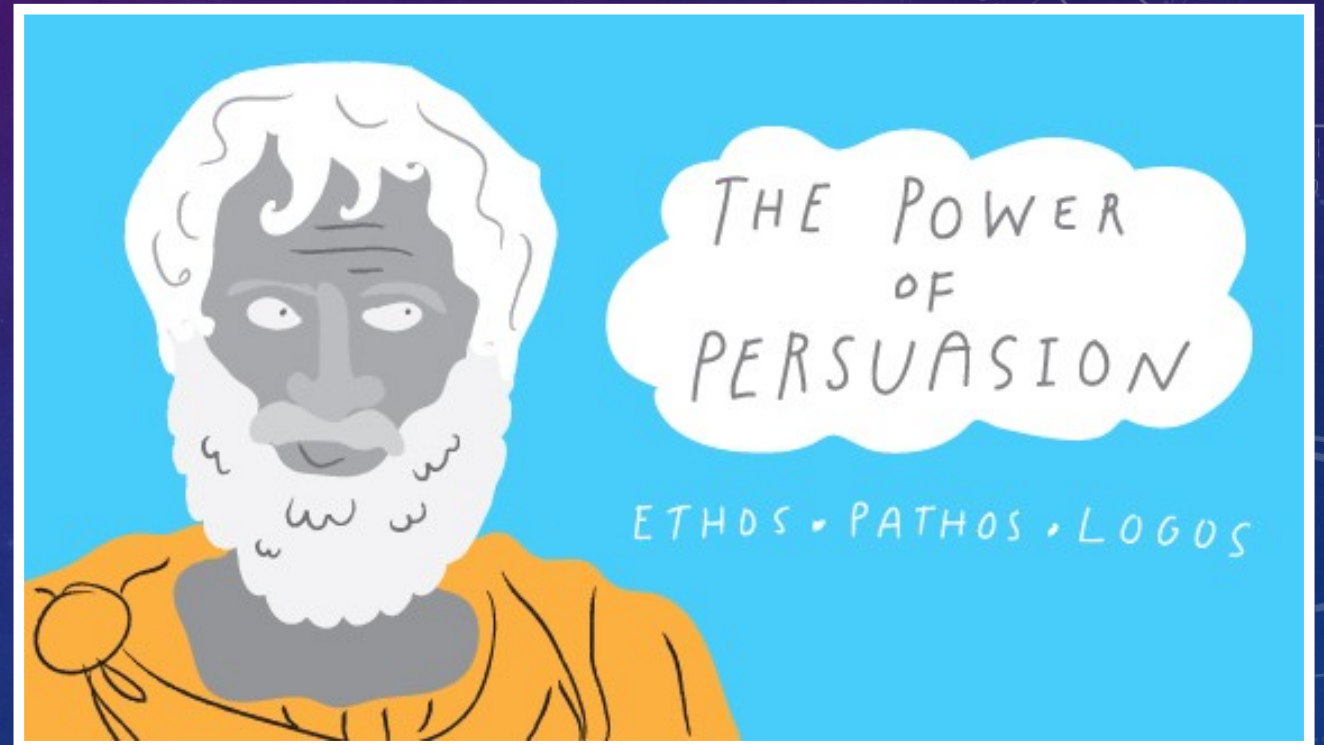
MESSAGE FACTORS

- **Message Structure:**
 - Message sidedness
 - Conclusion drawing (explicit vs. implicit)
 - Order of presentation (primacy vs. recency)
 - Length
- **Message Content**
 - Appeals
 - Strength of argument
- **Language**
 - Speed
 - Intensity
 - Verbal vs. Non-verbal



ARISTOTLE'S RHETORICAL APPEALS

- Ethos – convince audience of sender's character/credibility
- Pathos – emotional appeals (fear, guilt)
- Logos – appeal to logic/reason



- A forewarning is a warning of an impending influence attempt. Forewarnings include such phrases as, “and now a word from our sponsors,” that precede ads designed to persuade listeners.
- When people expect a message that is dissonant with their attitude, this arouses feelings of suspicion and hostility, resulting in resistance.
- Research shows that resistance following forewarning can take the form of increased generation of arguments against the proposal, called counterarguing, or increased thoughts in favor of the person’s own attitude, called bolstering.
- Forewarning can lead to acquiescence when less thoughtful processing is involved (peripheral route) and the individual wants to see themselves in a positive light (shifts attitudes or adopts more moderate point of view to look less persuaded)

CHANNEL FACTORS

- The Medium is the Message! (McLuhan, 1964)
- Affordances – what does the channel support in terms of source presentation and message characteristics?
- Credibility
- Involvement
- Ability to interact with message (e.g. Snapchat)





SENDER

“Source Factors”:

- Authority
- Credibility (trustworthiness, Jake Paul posting about feminine hygiene products)
- Social attractiveness
 - Likability
 - Similarity
 - Physical attractiveness (culture dependent!!!!)

PERSUASION PRINCIPLES

SECRETS FROM
THE
SCIENCE OF PERSUASION
BY
ROBERT CIALDINI & STEVE MARTIN

<https://www.youtube.com/watch?v=cFdCzN7RYbw>

COMPLIANCE PRINCIPLES

- Reciprocity
- Social Validation
- Commitment/Consistency
- Friendship/Liking
- Physical Attractiveness
- Similarity
- Authority
- Scarcity
- Self-Sell

**Compliance =
getting others to
say yes to a request**

RECIPROCITY

- Obligates people to give back the form of behavior they have received
- *One is more willing to comply with a request from someone who has previously provided a favor*
- Door-in-the face technique
- That's-not-all technique
- First-customer-of-the-day technique





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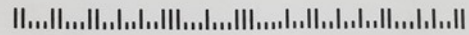


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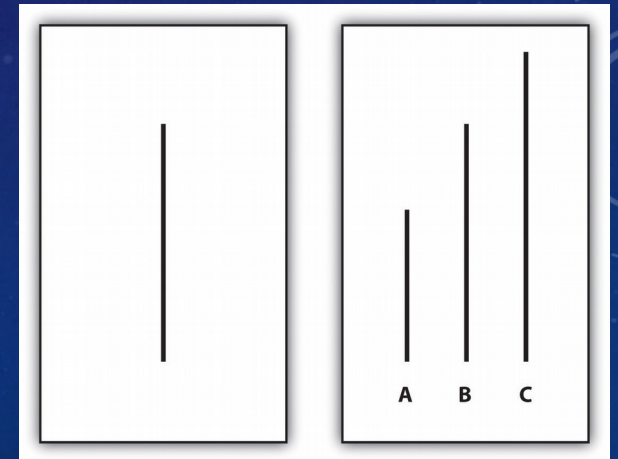
*****AUTO**5-DIGIT 77840

Ulrike Gretzel
301 Holleman Dr E Apt 922
College Sta, TX 77840-7048



SOCIAL VALIDATION

- When a lot of people are doing something, we assume it's the right thing to do
- Asch conformity experiments
- *One is more willing to comply with a request for behavior if it is consistent with what similar others are thinking or doing.*
- List technique
- Social labeling technique



A new bed that absorbs pressure but doesn't press back...

Tempur-Pedic Gives Astonishing Relief!

TEMPUR-PEDIC's ingenious Weightless Sleep technology can be a THERAPEUTIC MIRACLE for chronic sufferers of back, neck, and shoulder problems.

Victims of fibromyalgia, fibrositis, sciatica, aching hip and knee joints can also experience dramatic relief! Ditto those who suffer pressure-induced sleep disruptions—squirming, tossing, and turning all night long.

James Wheeler, M.D., a noted orthopedic surgeon, says "This bed is a big leap forward in sleep science...I recommend it to patients with pain."

Tempur-Pedic's high-tech Swedish Sleep System[®] is actually recognized by NASA and certified by the prestigious Space Foundation. The bed features an amazing



TEMPUR[®] SLEEP SURFACE that absorbs body pressure—and doesn't press back! The result: "mold-and-hold" musculoskeletal stabilization and alignment—a Tempur-Pedic exclusive feature.

No wonder Weightless Sleep beds are preferred by hospitals, rehab facilities, and nursing homes. And we're happy to report that well over 25,000 medical professionals world wide recommend us to their patients.

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Call for a FREE DEMONSTRATION KIT.

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You've got to feel it to believe it!..



RESEARCH PROVES IT...

86% of back-pain sufferers tell us our bed brings **PAIN RELIEF.**

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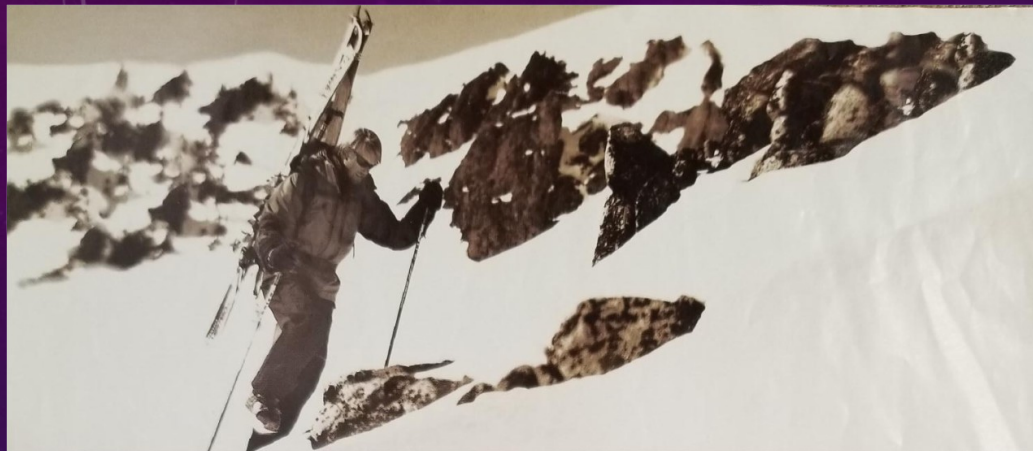


Tempur-Pedic, Inc.
1713 Jaggie Fox Way, Lexington, KY 40511

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COMMITMENT/CONSISTENCY

- Cognitive dissonance theory
- Consistency = intellectual strength
- *After committing to a position, one is more willing to comply with a request for behaviors that are consistent with that position*
- Foot-in-the-door technique
- Low-ball technique
- Even-a-penny-would-help technique



WOULD YOU LIKE TO KEEP ALL YOUR APPENDAGES?

■ YES. ■ NO. IF YOU ANSWERED YES, PLEASE READ ON.



*Chairman
Gert Boyle*

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FRIENDSHIP/LIKING

- We behave more favorably towards those we know and like
- *One is more willing to comply with the requests of friends or liked individuals*
- Tupperware home party
- Compliments
- Cooperation



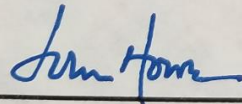
Certificate of Appreciation

Awarded to:

Ulrike Gretzel

In grateful recognition of your commitment to the world's most impoverished people. Project HOPE appreciates your willingness to extend your hand to those less fortunate than you.

Authorized this 2nd day of December 2005.



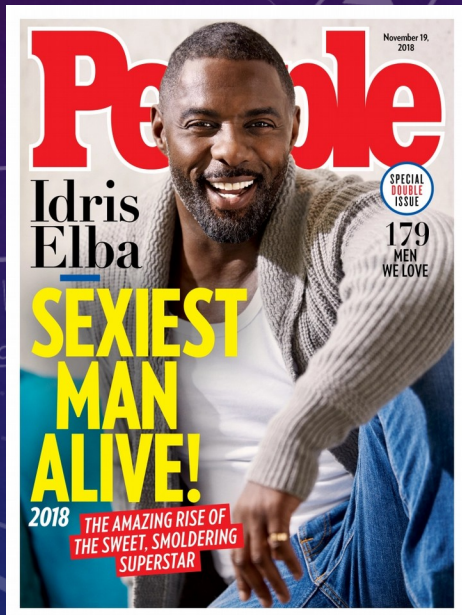
John P. Howe, III, M.D.
President and CEO



BEN FRANKLIN EFFECT

- Doing someone a favor leads us to feel more favorable towards them in general and to be more inclined to do them a second or third favor. We follow the reasoning that if we have agreed to do them a favor then it must be because we like them (even when that's not strictly the case) and so we subconsciously decide to like them even more in order to stay consistent with our own behavior.
- Inversely, if we act in a negative way towards someone then we convince ourselves that it is because we have negative feelings towards them because they are not nice or worth good treatment etc. This is one of the explanations for atrocities often committed during war time as the “enemy” is dehumanized through this Ben Franklin Effect, which lowers the threshold of guilt and morality.
- Contrarily to our usual assumption that our feelings towards someone will dictate how we treat them, the Ben Franklin Effect shows that our behavior towards someone can actually dictate how we feel about them instead.
- In web marketing, it is possible to enhance people's perceptions of your brand and products through asking them for small favors, such as sharing something on social media, joining up to a newsletter, giving their opinion and feedback, etc.

PHYSICAL ATTRACTIVENESS



Positive reactions to physical attractiveness



Greater liking



Greater association with talent, kindness, honesty and intelligence



One is more likely to comply with a request if it is made by a physically attractive communicator

SIMILARITY



BIRDS OF A FEATHER
FLOCK TOGETHER



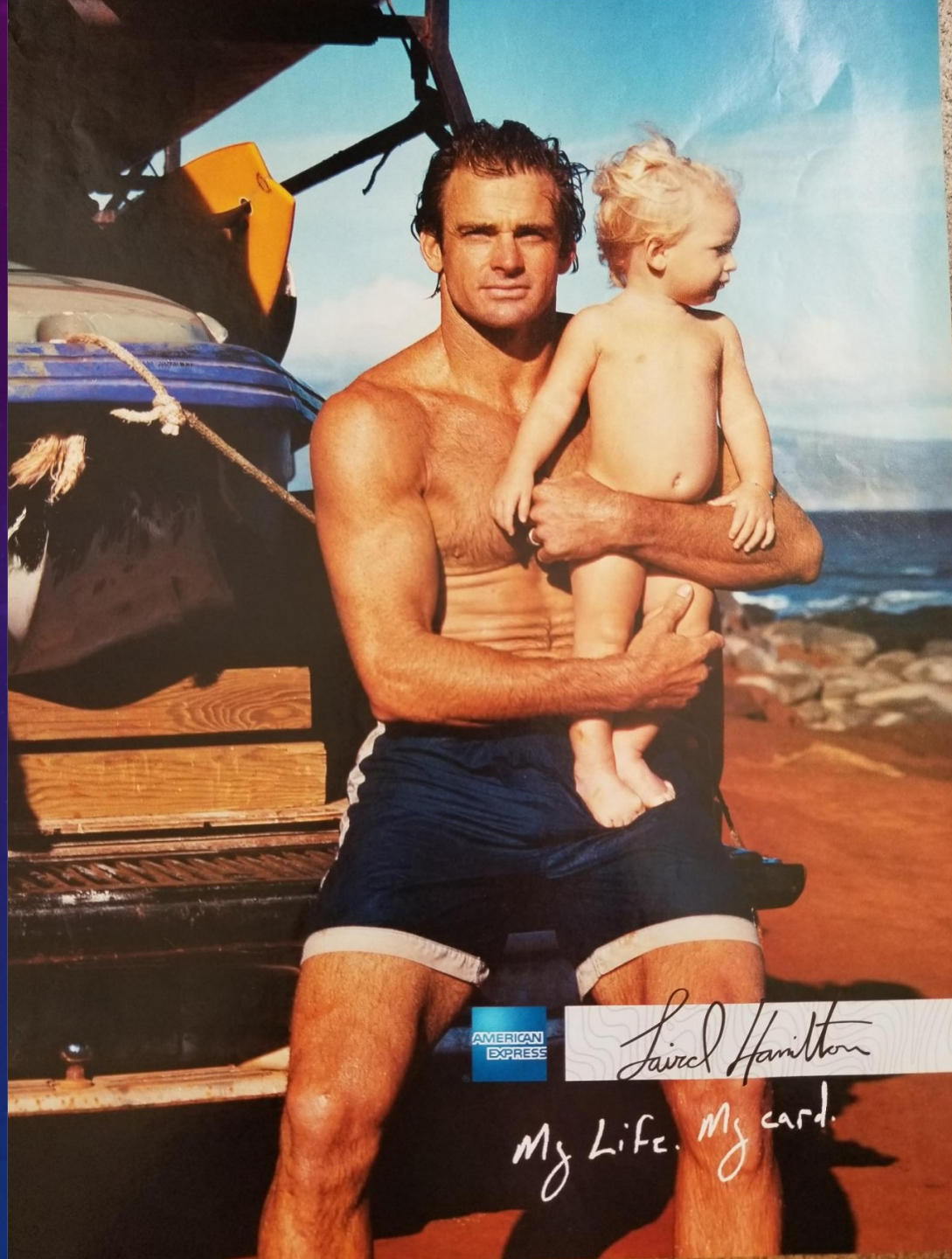
*ONE IS MORE LIKELY TO
COMPLY WITH A
REQUEST IF IT IS MADE
BY A SIMILAR OTHER*



LEADS TO
GREATER LIKING



MANY
DIMENSIONS



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My Life. My card.



AUTHORITY

- It makes a whole lot of sense to do what authority figures say – practical advantages
- *One is more willing to comply with suggestions made by authoritative communicators*
- Authority cues – uniform, title, etc.

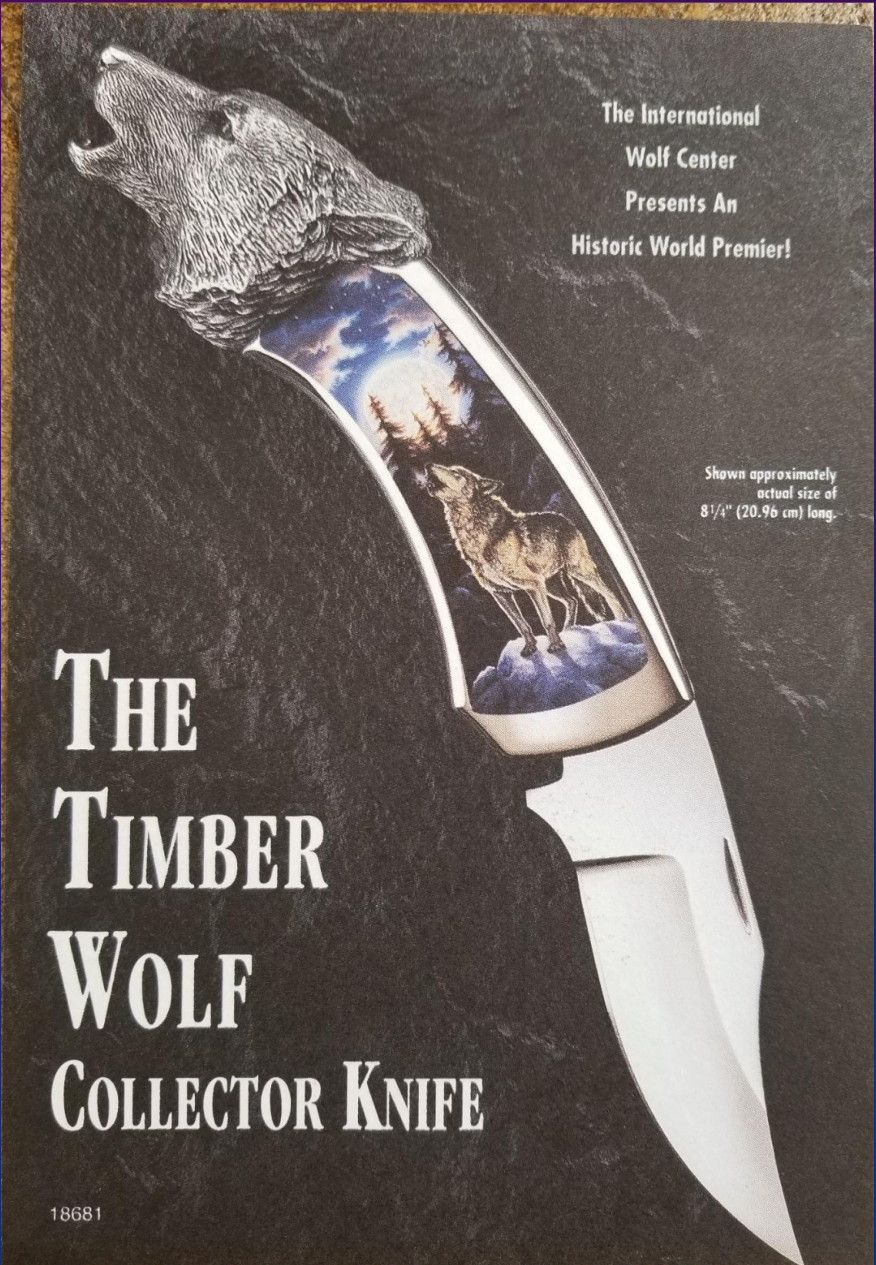


SCARCITY

- Opportunities seem more valuable when they are less available
- *One is likely to try to secure those opportunities that are scarce*
- Scarcity = Value
- Reactance theory – don't want to lose our freedom
- Limited-number technique
- Deadline technique



SCARCITY



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Presents An
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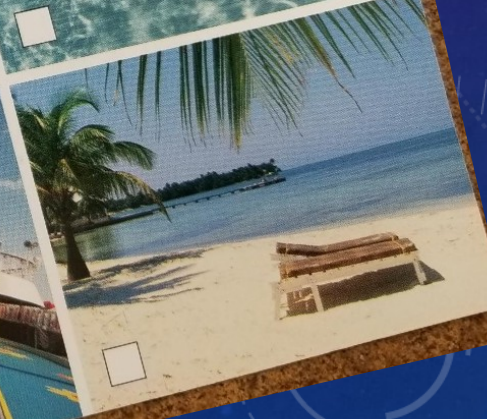
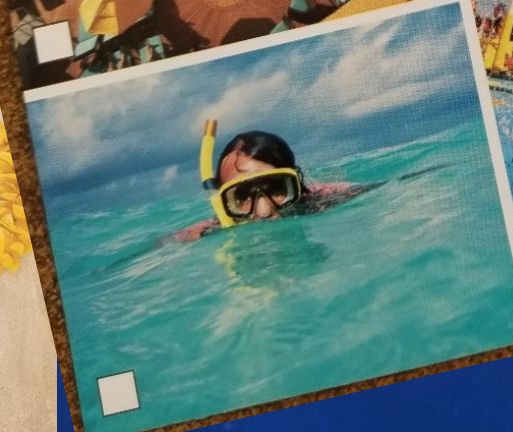


PLACE CROSSED FINGERS
HERE TO CHECK YOUR TAN



HOLIDAY WISH LIST:

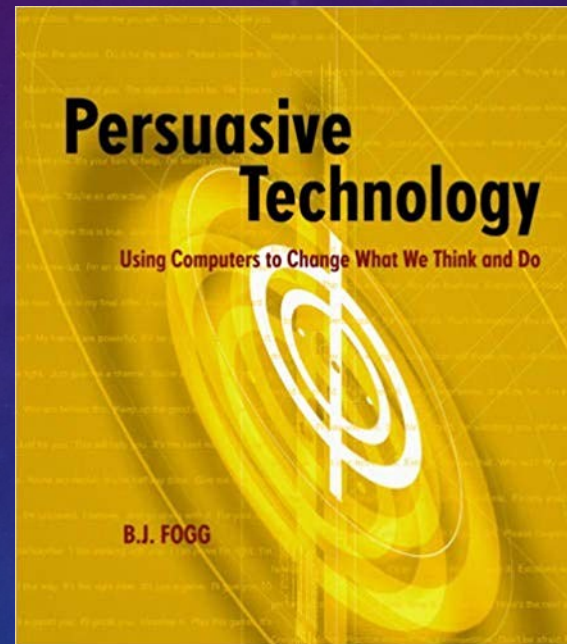
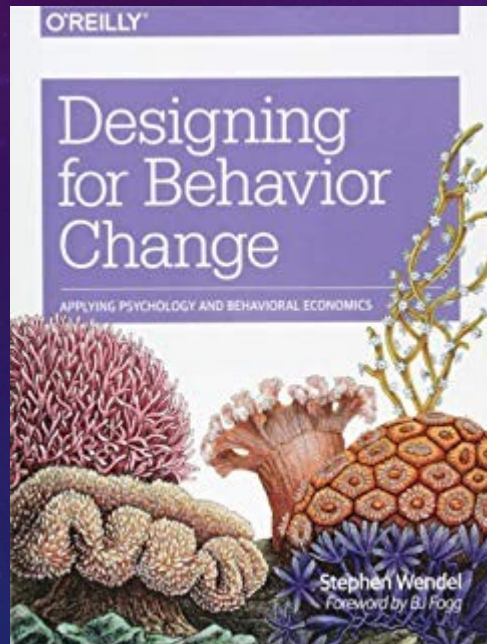
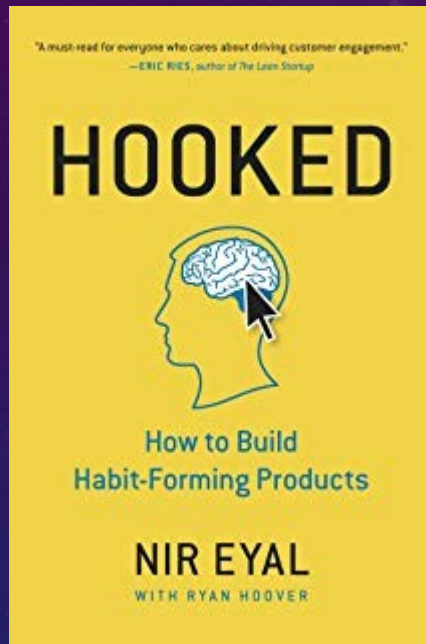
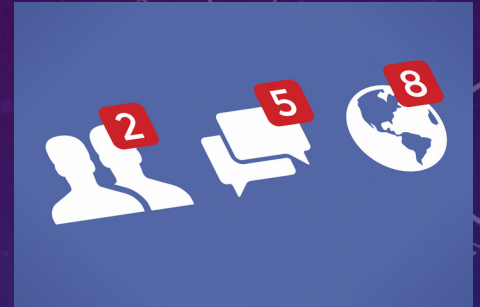
(CHECK ALL THAT APPLY)



PERSUASIVE TECHNOLOGY

DESIGNING TO CHANGE
ATTITUDES AND/OR
BEHAVIORS

PERSUASIVE DESIGN



How does Netflix encourage binge watching?

PERSUASIVE DESIGN



PERSUASIVE DESIGN FAILURES

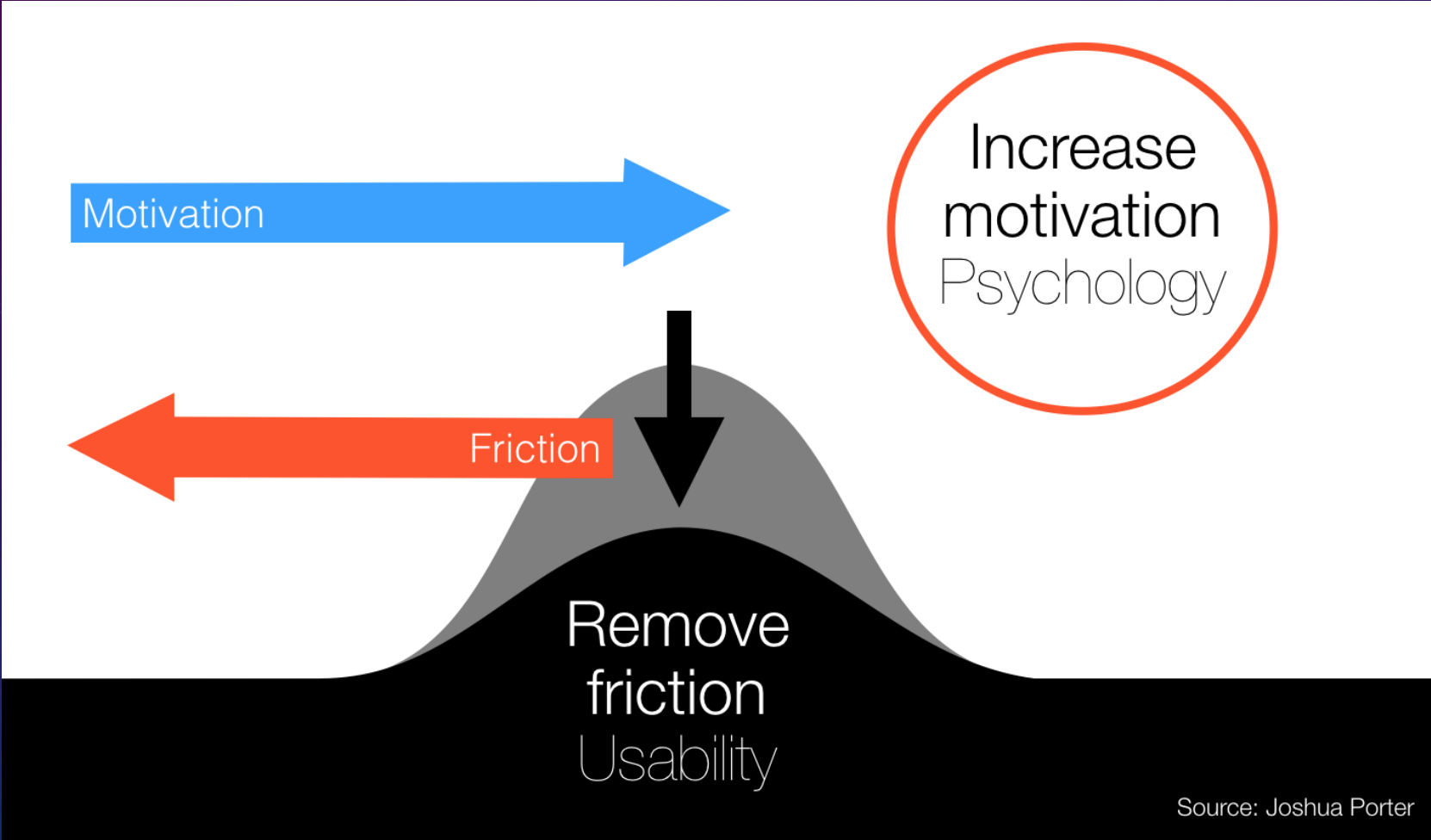


DEFINITION

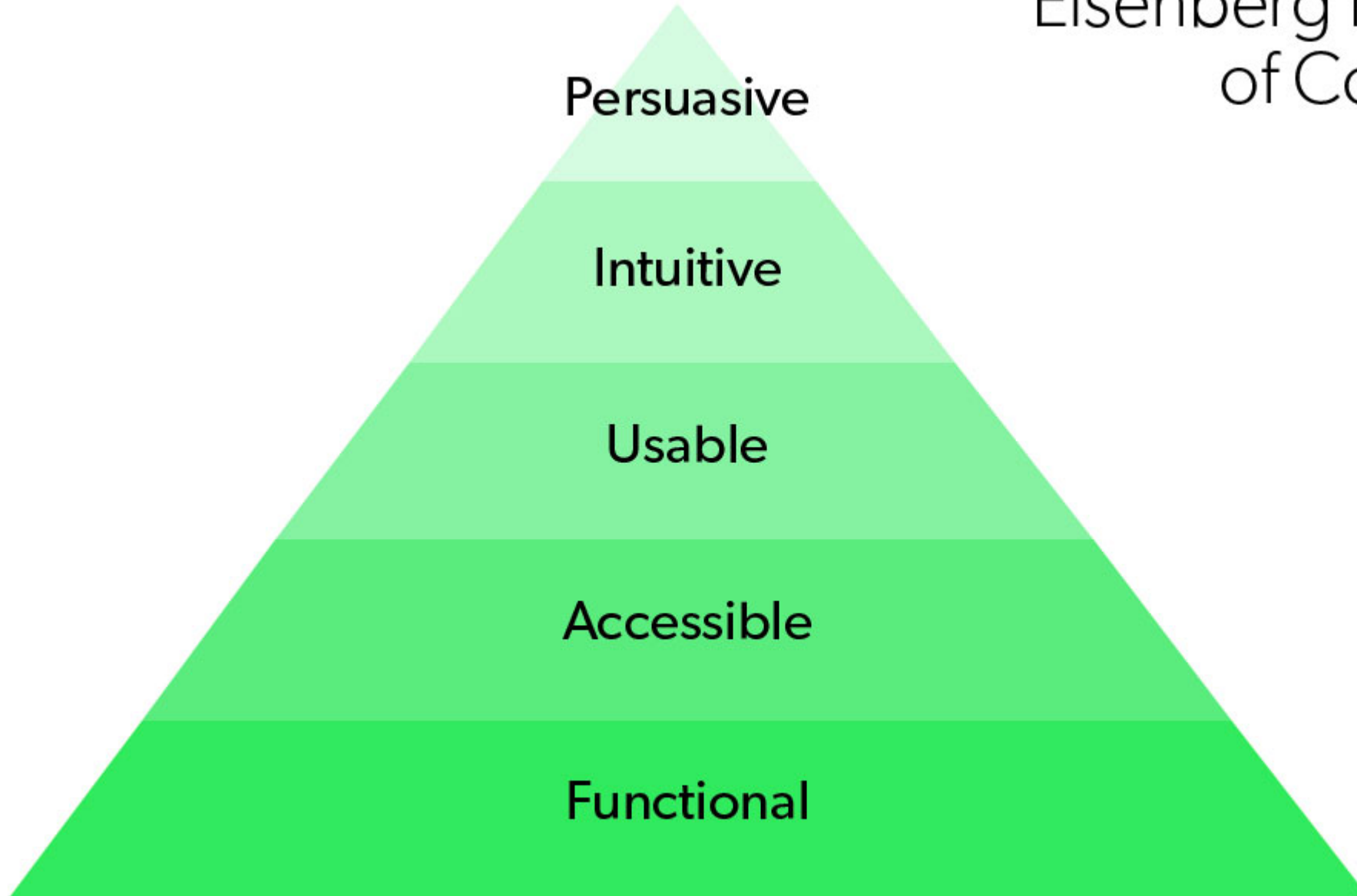
Persuasive Technology is technology designed to change behaviors or attitudes through persuasion but not coercion.



PERSUASIVE DESIGN PRINCIPLES



Eisenberg Hierarchy of Conversion

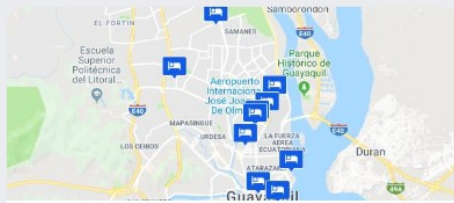


NUDGING

- Thaler & Sunstein (2008): *“any aspect of the choice architecture that alters people’s behavior in a predictable way without forbidding any options or significantly changing their economic incentives. To count as a mere nudge, the intervention must be easy and cheap to avoid. Nudges are not mandates. Putting the fruit at eye level counts as a nudge. Banning junk food does not.”*
- Choice architecture: ordering the context in which people make decisions
- Tools: defaults, framing, decoys
- Alternative: boosts (Hertwig and Grüne-Yanoff (2017) - decision-making aids that foster people’s competence to make informed decisions
- Steering vs. empowering decisions

DEFAULT OPTIONS

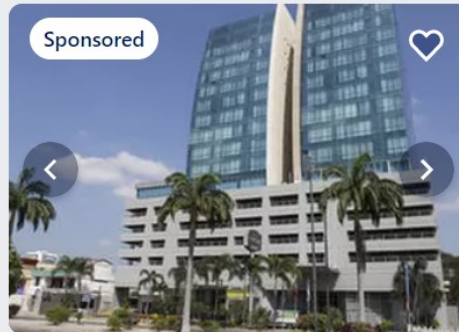
\$5.15 in Expedia points applied. [Remove points](#)



Map

Sort by

- Recommended
- Price
- Best Deals
- Guest Rating
- Distance from downtown
- Property Class
- Vacation Rentals



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Kennedy

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4.4/5 Excellent (717 reviews)

Free Cancellation

Reserve now, pay later



Holiday Inn Guayaquil Airport

Guayaquil

~~\$97~~ **\$92**
per night

4.5/5 Wonderful (410 reviews)



Member price



Wyndham Garden Guayaquil

Simon Bolivar

10% off

~~\$105~~ **\$89**
per night

4.2/5 Very Good (398 reviews)

Free Cancellation

Reserve now, pay later

DEFAULT EFFECT



Laziness – no mental effort required



Taken as suggestion



Endowment effect

DECOY EFFECT

- explains how when a customer is hesitating between two options, presenting them with a third “asymmetrically dominated” option that acts as a decoy will strongly influence which decision they make.
- An option can be defined as asymmetrically dominated when it is completely dominated by (i. e. definitely inferior to) one option and only partially dominated (i. e. inferior in some aspects) by the other. The asymmetrically dominated option is a decoy serving to increase preference for the dominating option – the one we really want the consumer to choose.
- Cognitive bias based on intergroup comparisons rather than focus on absolute values



AESTHETICS- USABILITY EFFECT

“visual appearance is the first thing a potential buyer notices about a product” and they are more sympathetic to faults or failures if a design is aesthetically pleasing, leading them to believe that the better-looking option is the better option overall (Bloch, 1983)

CHEERLEADER EFFECT

- The Cheerleader Effect is the way in which, when confronted with a group of items, the human brain automatically treats them as a set and forms an impression of this set as a whole without really taking in to account the individual characteristics of each item.
- We generate average information on everything we are viewing - including setting, size, emotions conveyed (in animate objects) and attractiveness - and then make a visual judgement based on these averages. Therefore, those items that may be less attractive or desirable find that they are elevated in status to the average that has already been accepted.
- Application example: positive and negative reviews presented together



CHOICE CLOSURE

- Choice Paradox: the more options, the harder the choice and the greater the likelihood for post-choice regret
- Choice Closure: Being able to complete a physical act of closure helps our brains to accept the finality of a choice, helping the decision-maker to move on from alternate possibilities and be much more satisfied with their choice.
- Example: closing browser



ZEIGARNIK EFFECT

- The Zeigarnik Effect is based on the idea that it is human nature to finish what we start and, if we don't finish something, we experience dissonance, resulting in an uncomfortable feeling.
- Providing a clear and positive sense of progression and ultimate closure through displaying things such as progress bars can help to make users aware of how far along in the payment or sign-up process they have gotten and encourage them to continue on to completion.

PERSUASION ARCHITECTURE

WHO are we trying to persuade to take the action?



```
graph TD; A[WHO are we trying to persuade to take the action?] --> B[WHAT is the action we want them to take?]; B --> C[WHAT does that person need to know in order to feel confident taking that action?];
```

The diagram consists of three vertically stacked, rounded rectangular boxes. The top box is orange and contains the text 'WHO are we trying to persuade to take the action?'. A white arrow points downwards from the bottom of this box to the top of the middle box. The middle box is light blue and contains the text 'WHAT is the action we want them to take?'. Another white arrow points downwards from the bottom of this box to the top of the bottom box. The bottom box is light purple and contains the text 'WHAT does that person need to know in order to feel confident taking that action?'. The background is dark blue with faint circular patterns and numbers.

WHAT is the action we want them to take?

WHAT does that person need to know in order to feel confident taking that action?



[International Conference on Persuasive Technology](#)

PERSUASIVE 2008: [Persuasive Technology](#), pp 164-176 | [Cite as](#)

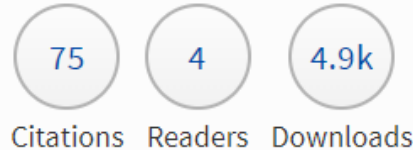
A Systematic Framework for Designing and Evaluating Persuasive Systems

Authors

[Authors and affiliations](#)

Harri Oinas-Kukkonen, Marja Harjumaa

Conference paper



Part of the [Lecture Notes in Computer Science](#) book series (LNCS, volume 5033)

OINAS-KUKKONEN & HARJUMAA (2008)

7 Postulates:

1. Information technology is never neutral
2. People like their views about the world to be organized and consistent
3. Individuals can be persuaded through the central and peripheral route
4. Persuasion is often incremental
5. Persuasion should always be open
6. Persuasive design should be unobtrusive
7. Persuasive technology should serve user needs

PRIMARY TASK SUPPORT

1. Reduction – simplifying task
2. Tunneling – guiding user through process
3. Tailoring – designed to support needs
4. Personalization – relevance, engagement
5. Self-monitoring – support goal achievement
6. Simulation – observability of cause & effect
7. Rehearsal – internalizing target behavior

Table 1. Primary task support

Principle	Example requirement	Example implementation
1. Reduction A system that reduces complex behavior into simple tasks helps users perform the target behavior and it may increase the benefit/cost ratio of a behavior.	System should reduce effort that users have in regard to performing their target behavior.	Mobile application for healthier eating habits lists proper food choices at fast food restaurants [24]. Smoking cessation web site provides an interactive test which measures how much money a user will save with quitting.
2. Tunneling Using the system to guide users through a process or experience provides opportunities to persuade along the way.	System should guide users in the attitude change process by providing means for action that brings closer to the target behavior.	Smoking cessation web site offers information about treatment opportunities after a user has answered an interactive test about how addicted (s)he is on tobacco.
3. Tailoring Information provided by the system will be more persuasive if it is tailored to the potential needs, interests, personality, usage context, or other factors relevant to a user group.	System should provide tailored information for its user groups.	Personal trainer Web site provides different information content for different user groups, e.g. beginners and professionals. Web site for recovering alcoholics presents a user such stories which are close to one's own story.
4. Personalization A system that offers personalized content or services has a greater capability for persuasion.	System should offer personalized content and services for its users.	Users are able to change the graphical layout of an application or the order of information items at a professional Web site.
5. Self-monitoring A system that helps track one's own performance or status supports in achieving goals.	System should provide means for users to track their performance or status.	Heart rate monitor presents a user's heart rate and the duration of the exercise. Mobile phone application presents daily step count [3].
6. Simulation Systems that provide simulations can persuade by enabling them to observe immediately the link between the cause and its effect.	System should provide means for observing the link between the cause and effect in regard to their behavior.	Before and after pictures of people who have lost weight are presented on a Web site.
7. Rehearsal A system providing means with which to rehearse a behavior can enable people to change their attitudes or behavior in the real world.	System should provide means for rehearsing a target behavior.	A flying simulator.

DIALOGUE SUPPORT

1. Praise
2. Rewards
3. Reminders
4. Suggestion
5. Similarity – imitate users
6. Liking – system appeal
7. Social role – e.g. support role, teacher

Table 2. Dialogue support

Principle	Example requirement	Example implementation
8. Praise By offering praise a system can make users more open to persuasion.	System should use praise via words, images, symbols, or sounds as a way to give positive feedback for a user.	Mobile application which aims at motivating teenagers to exercise praises user by sending automated text-messages for reaching individual goals. [24]
9. Rewards Systems that reward target may have great persuasive powers.	System should provide virtual rewards for users in order to give credit for performing the target behavior.	Heart rate monitor gives a user a virtual trophy if they follow their fitness program. Game rewards users by altering media items, such as sounds, background skin, or a user's avatar according to user's performance. [21]
10. Reminders If a system reminds users of their target behavior, the users will more likely achieve their goals.	System should remind users of their target behavior during the use of the system.	Caloric balance monitoring application sends text-messages for their users as daily reminders. [10]
11. Suggestion Systems offering suggestions at opportune moments will have greater persuasive powers.	System should suggest users certain behaviors during the system use process.	Application for healthier eating habits suggests children to eat fruits instead of candy at a snack time.
12. Similarity People are more readily persuaded through systems that remind themselves in some meaningful way.	System should imitate its users in some specific way.	Slang names are used in an application which aims at motivating teenagers to exercise. [24]
13. Liking A system that is visually attractive for its users is likely to be more persuasive.	System should have a look and feel that appeals to its users.	Web site which aims at encouraging children to take care of their pets properly has pictures of cute animals.
14. Social role If a system adopts a social role, users will more likely use it for persuasive purposes.	System should adopt a social role.	E-health application has a virtual specialist to support communication between users and health specialists. [19]

TECHNOLOGIES AS COMMUNICATION CHANNELS

Credibility

=

Expertise

+

Trustworthiness

SYSTEM CREDIBILITY SUPPORT

1. Trustworthiness
2. Expertise
3. Surface credibility – competent look & feel
4. Real-world feel
5. Authority
6. Third-party endorsements
7. Verifiability

Table 3. System credibility support

Principle	Example requirement	Example implementation
15. Trustworthiness A system that is viewed as trustworthy (truthful, fair, and unbiased) will have increased powers of persuasion.	System should provide information that is truthful, fair and unbiased.	Company Web site provides information related to its products rather than simply providing advertising or marketing information.
16. Expertise A system that is viewed as incorporating expertise (knowledge, experience, and competence) will have increased powers of persuasion.	System should provide information showing expertise.	Company Web site provides information about their core know-how. Company Web site is updated regularly and there are no dangling links or out-of-date information.
17. Surface credibility People make initial assessments of the system credibility based on a firsthand inspection.	System should have competent look and feel.	There are only a limited number of and a logical reason for ads on a company Web site.
18. Real-world feel A system that highlights people or organization behind its content or services will have more credibility.	System should provide information of the organization and/or actual people behind its content and services.	Company Web site provides possibilities to contact specific people through sending feedback or asking questions.
19. Authority A system that leverages roles of authority will have enhanced powers of persuasion.	System should refer to people in the role of authority.	Web site quotes an authority, such as a statement by government health office.
20. Third-party endorsements Third-party endorsements, especially from well-known and respected sources, boost perceptions on system credibility.	System should provide endorsements from respected sources.	E-shop shows a logo of a certificate which assures that they use secure connections. Web site refers to its reward for high usability.
21. Verifiability Credibility perceptions will be enhanced if a system makes it easy to verify the accuracy of site content via outside sources.	System should provide means to verify the accuracy of site content via outside sources.	Claims on a Web site are supported by offering links to other web sites.

SOCIAL SUPPORT

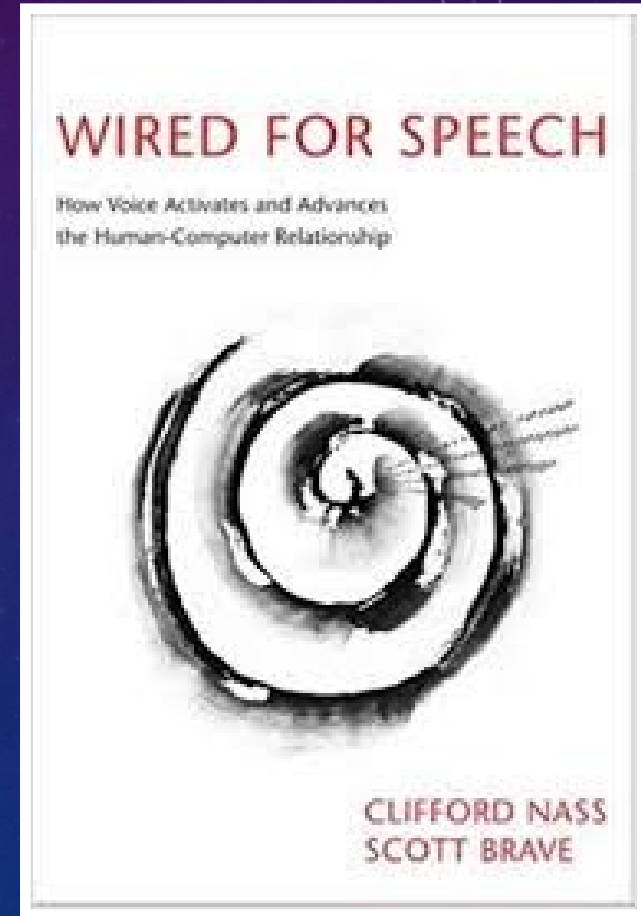
1. Social learning – observe others
2. Social comparison
3. Normative influence – peer pressure
4. Social facilitation – social encouragement
5. Cooperation
6. Competition
7. Recognition – public recognition

Table 4. Social support

Principle	Example requirement	Example implementation
22. Social learning A person will be more motivated to perform a target behavior if he or she can use a system to observe others performing the behavior.	System should provide means to observe other users who are performing their target behaviors and to see the outcomes of their behavior.	A shared fitness journal in a mobile application for encouraging physical activity. [3]
23. Social comparison System users will have a greater motivation to perform the target behavior if they can compare their performance with the performance of others.	System should provide means for comparing performance with the performance of other users.	Users can share and compare information related to their physical health and smoking behavior via instant messaging application. [21]
24. Normative influence A system can leverage normative influence or peer pressure to increase the likelihood that a person will adopt a target behavior.	System should provide means for gathering together people who have the same goal and get them to feel norms.	Possibility to challenge relatives or friends to quit smoking from a web site via email or text message.
25. Social facilitation System users are more likely to perform target behavior if they discern via the system that others are performing the behavior along with them.	System should provide means for discerning other users who are performing the behavior.	A shared fitness journal in a mobile application for encouraging physical activity. [3]
26. Cooperation A system can motivate users to adopt a target attitude or behavior by leveraging human beings' natural drive to co-operate.	System should provide means for co-operation.	The behavioral patterns of overweight patients are studied through a mobile application, which collects data and sends it to a central server where it can be analyzed in detail. [10]
27. Competition A system can motivate users to adopt a target attitude or behavior by leveraging human beings' natural drive to compete.	System should provide means for competing with other users.	Online competition, such as Quit and Win (stop smoking for a month and win a prize).
28. Recognition By offering public recognition (for an individual or a group), a system can increase the likelihood that a person or group will adopt a target attitude or behavior.	System should provide public recognition for users who perform their target behavior.	Personal stories of the people who have succeeded in their goal behavior are published on a Web site. Names of awarded people, such as "quitter of a month", are published on a Web site.

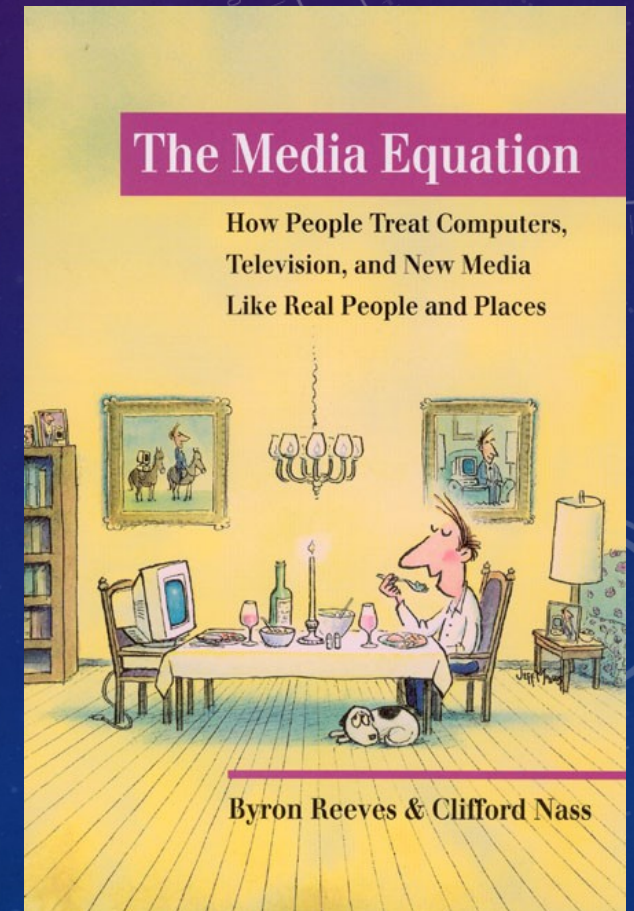
PERSUASIVE TECHNOLOGY IN TOURISM

- Before, during and after travel
- Websites, mobile apps, wearable technologies, information kiosks, in-room technologies, in-car technologies, etc.
- Consumers & employees
- Interface, navigation, content, content delivery



PERSUASIVE TRAVEL RECOMMENDER SYSTEMS

- Gretzel & Fesenmeier (2006)
- Preference elicitation
- Effort reduction fallacy
- Systems as quasi-social actors
- Media equation: people tend to treat computers as if they were real people
- Conversational recommender systems



ETHICAL CONSIDERATI ONS:

HIDDEN INFLUENCE

Persuasion – forthright appeal to person's decision-making powers

Coercion – restriction of acceptable options

Manipulation – covert subversion of person's decision-making power

SUSSER, ROESSLER, NISSENBAUM (FORTHCOMING): ONLINE MANIPULATION – HIDDEN INFLUENCES IN A DIGITAL WORLD

- Digital surveillance – reveals individual vulnerabilities and larger patterns individuals might not be aware of
- Digital platforms = decision-making contexts that can be specifically designed to exploit each individual user’s particular vulnerabilities, and can change and adapt over time
- Massive and hyper-targeted manipulation

Big Data as a mode of regulation by design



- The analytic phenomenon known as 'Big Data' can be understood as a mode of design-based regulation based on algorithmic decision-guidance techniques
- By highlighting correlations between data items that would not otherwise be observable, these techniques are being used to shape the informational choice context in which individual decision-making occurs, with the aim of channelling attention and decision-making in directions preferred by the 'choice architect'
- By relying upon the use of 'nudge' – a particular form of choice architecture that alters people's behaviour in a predictable way without forbidding any options or significantly changing their economic incentives, these techniques constitute a 'soft' form of design-based control.
- Unlike the static Nudges popularised by Thaler and Sunstein (2008) (e.g. *placing the salad in front of the lasagne to encourage healthy eating*), Big Data analytic nudges are extremely powerful and potent due to their networked, continuously updated, dynamic and pervasive nature (**hence 'hypernudge'**)

EXAMPLE: UBER

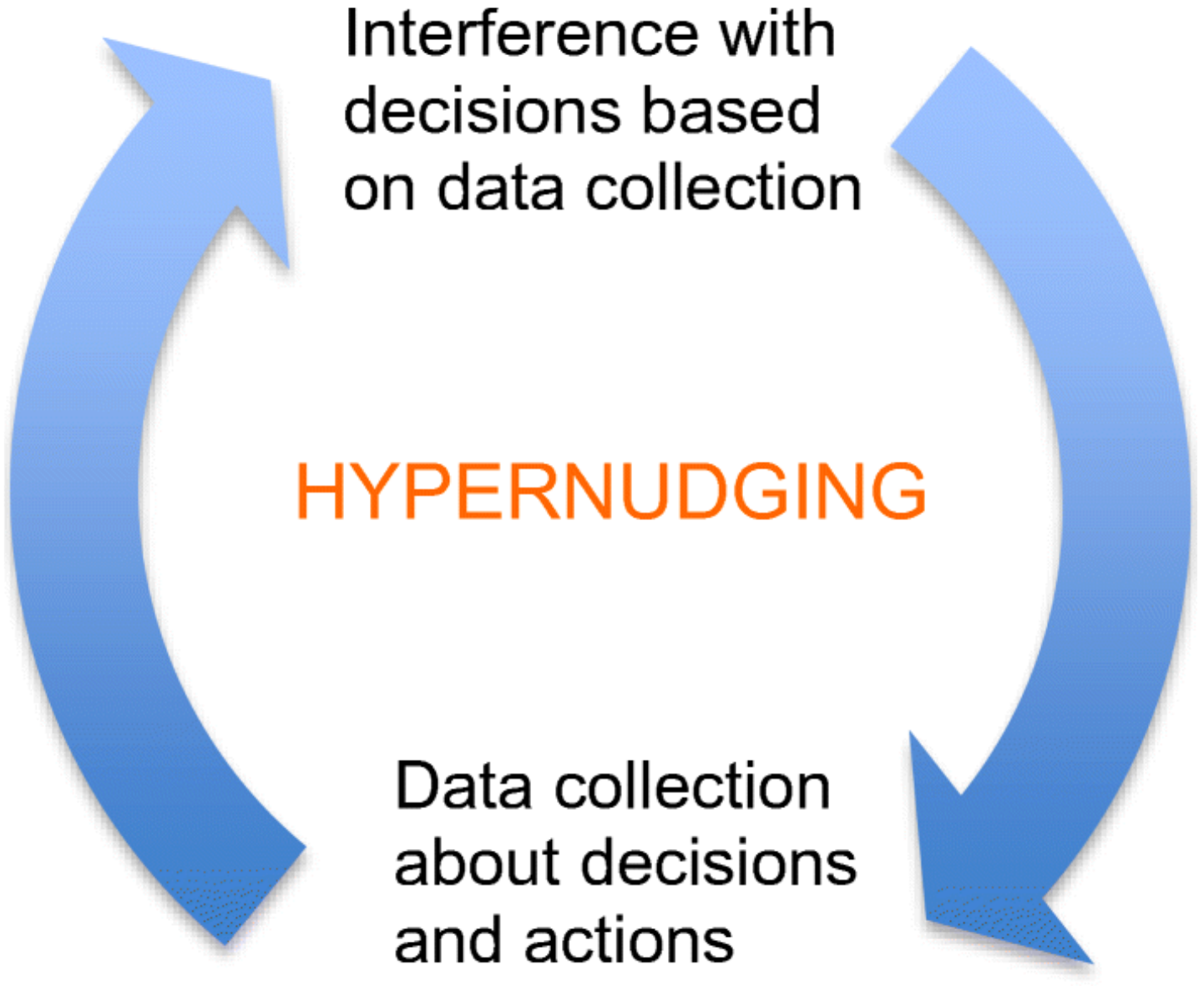
Because conditions of high rider demand and low driver supply yield price surges, they are favored by drivers. Uber's interests, however, are best served by many drivers serving as many riders as possible, and prices that beat those of their competitors. Accordingly, Uber barrages drivers with texts, emails, and popups, as well as carefully designed graphics to keep them behind their wheels and to direct them, ostensibly, to areas of highest demand exploiting the gamic aspect of motivating drivers toward the "win" of surge pricing. One of the techniques cited by critics is carefully curated graphic representations of predicted needs, for example, around the conclusion of sporting events, or bar-closing times hinting that both demand and the likelihood of surge pricing will be high.¹⁹ In other words, drivers are presented with vague promises, enticed by heat map estimates, which conflate real-time and predictive demand. Drivers are thus nudged toward service for highly uncertain rewards in a manner Ryan Calo and Alex Rosenblat liken to "bait and switch."²⁰

A second feature is to urge drivers to continue working as they reach the end of shifts and try to log out of the system. They may receive push notifications, such as, “Are you sure you want to go offline? Demand is very high in your area. Make more money, don’t stop now!” accompanied by a surge icon.²¹ Or, it would tell them that they’re close to earning some arbitrary number, e.g. “you’re \$10 away from making \$330,” exploiting “people’s preoccupation with goals – to nudge them into driving longer,” evidenced in robust findings from behavioral science research.²² Or, “You’re almost halfway there!” encouraging drivers to meet a 25 ride milestone. Similar effects are imputed to the gamification of Uber’s interactive app, which shows work status (hours, earnings, rides, etc.) in game-like formats known for their power to hold players at the game console, and, presumably, drivers at the wheel. Uber is not alone in employing these practices.²³

Another feature is automatic queuing, familiar to those who subscribe to streaming services such as Netflix or Amazon Video. Before a ride finally ends, Uber cues up the next. Drivers, like viewers, find it more difficult to refuse than take it on. Not only do drivers report feeling hooked to the continuous chain of ride requests, but the effect of keeping drivers on the roads actually means lowered likelihood of surge prices. (Although Uber responded to concerns by allowing automatic queuing to be disengaged, the feature is the default and reloads after all breaks.)

The background features a dark purple-to-blue gradient with faint, semi-transparent technical diagrams. These include circular gauges with numerical scales (e.g., 40, 150, 160, 170, 180, 200, 210, 220, 230, 240, 250, 260 on the left; and 520, 530, 540, 550 on the right), dashed lines, and arrows, suggesting a scientific or engineering context.

WHERE DOES NUDGING END AND MANIPULATION START?



Interference with
decisions based
on data collection

HYPERNUDGING

Data collection
about decisions
and actions

SUSSER ET AL.

- Manipulative nudges are intentionally hidden and exploit vulnerabilities/cognitive biases
- Hypernudges are not only hidden but precisely targeted and exploit individual vulnerabilities

Finally, Uber. This case is complicated, not least because there are so many potentially manipulative practices in which the company is known to have engaged. Some strategies seem clearly manipulative, such as intentionally misleading drivers with surge pricing “heat maps” that conflate real-time and predictive demand. But others may not be. For example, automatically queuing the next ride request before the driver has time to decide whether or not to continue working might *feel* manipulative—since it exploits the fact that we need time to make decisions—there is nothing hidden about this strategy. The driver may understand perfectly well what happened, and though they may rightly have felt pressured, they likely would not have felt tricked. Thus, on our account, automatic queuing is not a manipulative practice, though there may be other reasons for questioning its ethical standing.

One last Uber practice is worth considering—namely, the notifications designed to nudge drivers to stay on the road. Much like automatic queuing, drivers may experience this pressure as manipulative, but as it is neither hidden nor significantly targeted we would ultimately not judge it to be so. As a nudge, it is designed to exploit our desire to accomplish goals (even if they are functionally meaningless), but it is not a manipulative practice. Tweak some aspects of this scenario, however, and one can imagine future versions of this practice that are indeed manipulative. Consider if notifications were timed to appear right when drivers were desperate—say, if the earnings goals weren’t arbitrary, but instead were indexed to bills coming due. If the apparatus of such influence were hidden from the driver, manipulation would be a worry.

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