

Working Paper

The Hitchhiker's Guide to Applied Behavioural Science



Image by Adrien Liard

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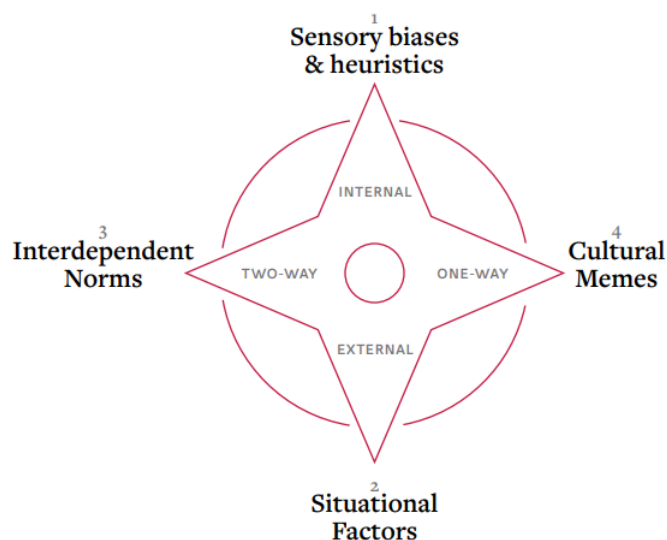
The Hitchhiker's Guide to Applied Behavioural Science:

A Journey to the Land of Nudge

As Behavioural Science continues to spread its influence around the world, questions about cultural sensitivity and the universality of its principles pose barriers in the application of insights (Henrich, Heine, & Norenzayan, *The weirdest people in the world?*, 2010). The consensus is that context is key in understanding human behaviour. But the definition of what counts as context remains unclear, with everyone relating to it with their frame of reference: the behavioural economists decode biases, the sociologists social norms, and the anthropologists cultural traits.



But are all behavioural insights fit for travel, i.e., universally applicable? What should behavioural consultants and marketers put in their suitcases, and what should they try to discover locally if they want to intervene in countries other than their own? In an attempt to guide them, we have built a compass for context exploration: an empirical framework articulating the contributions of various disciplines (Ethnography, Behavioural Economics, Social Sciences, Neurosciences...) helping from Individual behaviours decoding to social ones.

Illustrated by research results in different parts of the world, this framework brings out a natural axis of sensitivity to culture, and how behavioural interventions can actually leverage it. We conclude with travel tips for explorers, to help them avoid major pitfalls in administering interventions, and encourage relevant interdisciplinarity adapted to specific context polarities. Without a proper understanding of the context, interventions can at best be inefficient, and at worst counterproductive or even offensive.



The individual axis runs between internal factors (cognitive biases and heuristics) and external factors (situational dimensions, or circumstances like time, place, and sequence of action). Note that we have created a separate dimension for the social aspects of the situation as well as biases related to others and self, this to avoid overlaps and catch-all categories.

Indeed, the social axis runs between interdependent norms (two way: when individuals mutually influence one another) and the cultural memes (one way: societies' unilaterally imposed default patterns, which the individual is unable to influence). We will come back more in details to justify these lines drawing-out the four polarities. The increasing importance of culture follows the grey arrow (and orange colour density) in following picture.

	Individual diagnostic		...to...	Social diagnostic	
					
Influences	1 COGNITIVE BIAS AND HEURISTICS (Internal)	2 SITUATIONAL FACTORS (External)	3 INTERDEPENDENT NORMS (Two way)	4 CULTURAL MEMES (One-way)	

1. Cognitive biases and heuristics know few boundaries:

Why has the game Angry Birds (created in Finland by a Spanish man and a Chinese woman) become a global success (even in such culturally diverse countries as India, Brazil, or Malaysia)? Why is it that people globally jump at their phones in response to a notification ping? Because the designers of the digital world (applications, games, websites, etc.) have understood how to exploit some of our universal biological weaknesses. The mechanisms of attention capture player engagement and are largely based on behavioural heuristics. They strongly influence the designs of habit loops marked by cycles of alerts, routines, and rewards. These loops cause a dopamine rush that reinforces behaviour and even threatens addiction.

Our sensory and cognitive circuits are naturally less influenced by cultural factors (with the exception, of course, of those shaped by learning, such as reading). Loss aversion, for example, appears to be a preservation mechanism showing that people are more willing to take risks to avoid a loss than to make a gain. It is also one of the cognitive biases most studied by behavioural economists. Its effects can vary in intensity, depending on geography, but its presence has now been successfully observed through replications in more than 19 countries, including China (Ruggeri, Alí, Berge, & al., 2020).

Through our work in various geographies, we have found through empirical research that most action biases (AC Valdez, 2017) find comparable echoes in many parts of the world, reflecting some researcher's early theories (Bovens, 2010). These biases include, for example, illusory correlations (our propensity to perceive a relationship between two independent but concurrent events when none necessarily exists), the availability heuristic (a tendency to overvalue examples that spring to mind), the ostrich effect (the tendency to ignore facts that make us uncomfortable or do not serve our beliefs), and the anchoring effect (being overly influenced by an initial piece of information).

Note that we are intentionally excluding all socially related biases (involving reciprocity, conformity, reaction or self-image in general) from the individual cognitive bias and heuristics scope, as they would fall on the other axis of the compass, that of the social norms (and are way more sensitive to cultural influence).

However, even if it is considered reasonable to assume that some biases are present in all human behaviour irrespective of borders, studying them should include precautions. If a study to measure a bias involves historical references, for example, it is important that the question stays culturally relevant to the country where it is being used. For example, in a study to measure the power of the anchoring effect in China, our researchers (PRS-INVIVO & BVA) used a US experiment model, but modified the questions to make them culturally relevant. The initial study to measure the power of the anchoring effect in the US surveyed Americans on their perceived estimation of Lincoln's age at his death.

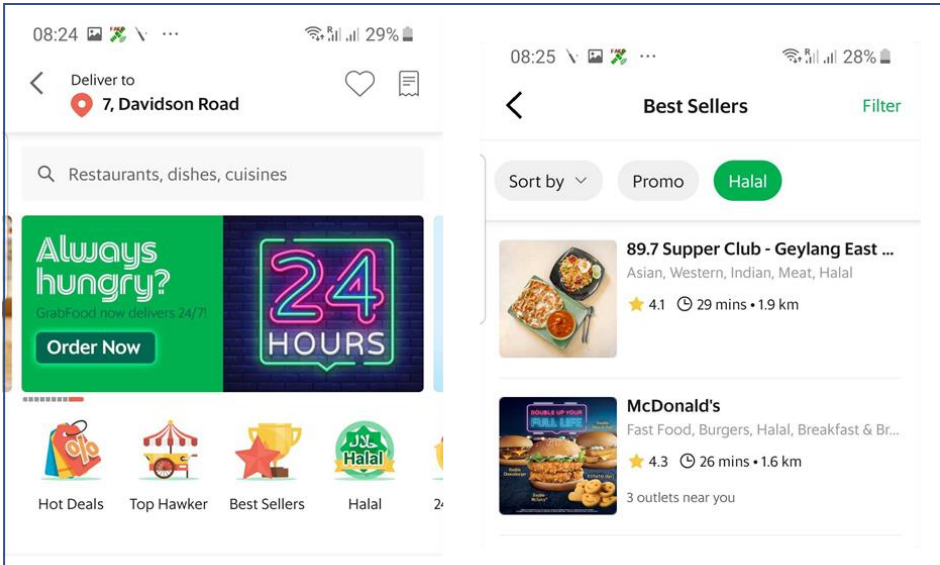


Our Chinese study surveyed two groups of 150 people - representative samples of Tier 1 and 2 Chinese Cities- and switched the subject from Lincoln, known to most Americans, to the Chinese icon Confucius, known to most, if not all, Chinese. The groups were asked what age they believed Confucius was at his death.

The preliminary question for one of the groups included an anchor of an age: How old do you think Confucius was at his death: younger or older than 140 years old? The second group’s preliminary question was open: How old do you think Confucius was when he died? The result was unequivocal: with the old age anchor, the average estimated age response was 96.5 years old, while the average estimated age response from the group without it was 75.5 years old. (He died at the age of 71). These results confirm that the anchor effect has the same influence in China as it does in the US: a high number anchor led respondents to estimate a higher age on average.

2. Situational Factors - watch out for blind spots:

In your travels, you may find that, irrespective of your location, the options of take-out delivery service applications such as Uber-Eats and Grab Food are the same everywhere. On closer observation, although the application designs may appear very similar from one country to another (taking language constraints into consideration). In fact, some elements are subtly localized, such as the proposed selection filters.

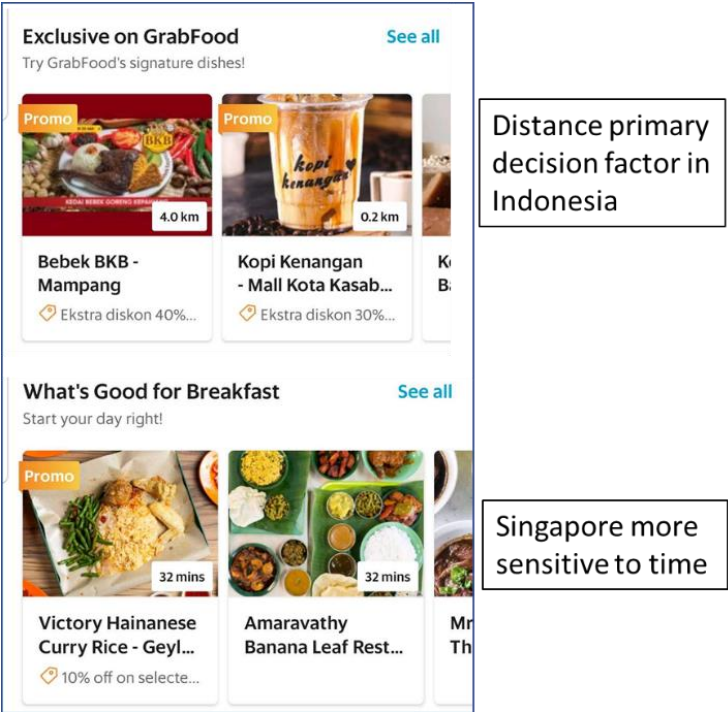


The “halal” filter in Singapore/Malaysia takes precedence over “vegetarian” or “healthy” filters of Vietnam.

Source: The Undistancing Project 2020, Vaibhav Bhargava

In Singapore and Malaysia, for example, both locations that unite a large variety of communities and religions, the "Halal" selection filter takes precedence over “vegetarian” or “healthy” filters of Vietnam, as it is an essential criterion of choice for a significant proportion of the local user base. In Indonesia and Vietnam, after placing their orders, users are given

distance metrics to follow delivery progress and not estimated delivery time data as is done in Singapore and Malaysia. Indeed, the traffic and geography of Indonesia and Vietnam are such that the maps mileage data metric is perceived as more reliable than its time metric.

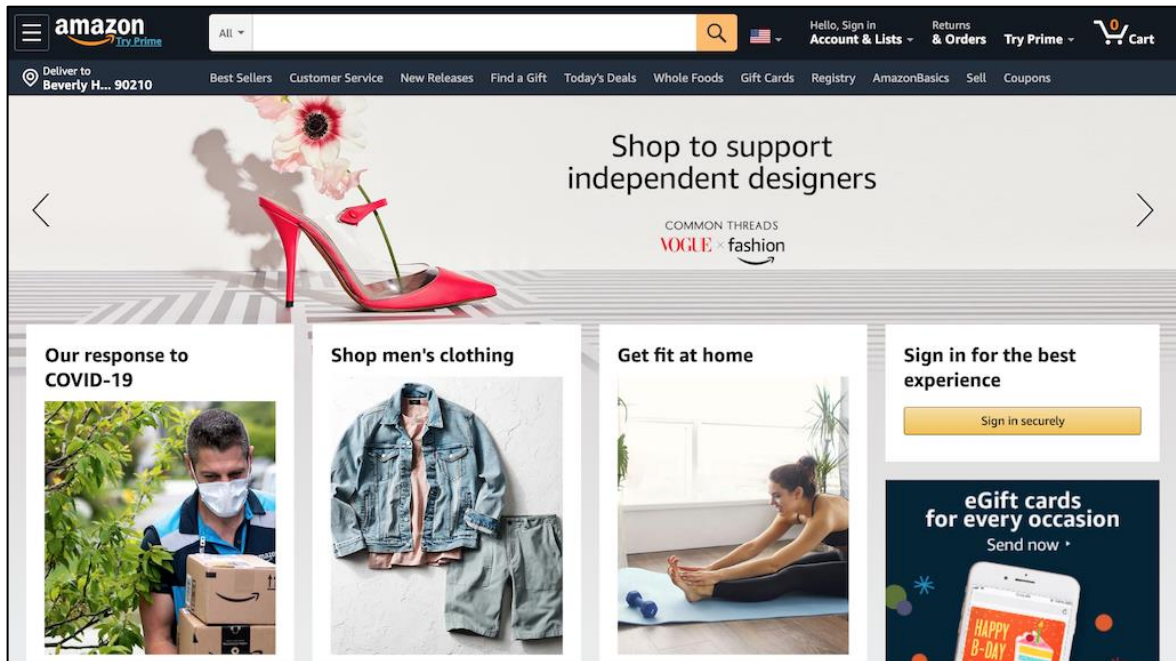


Source: The Undistancing Project 2020, Vaibhav Bhargava

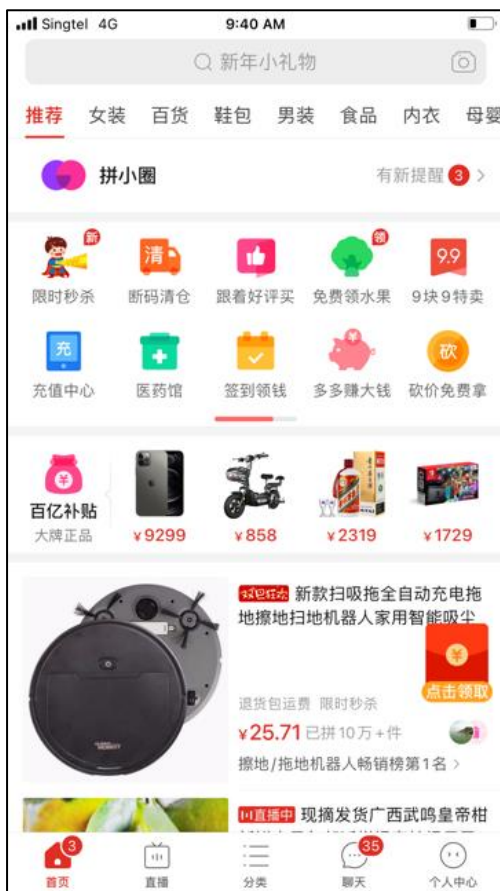
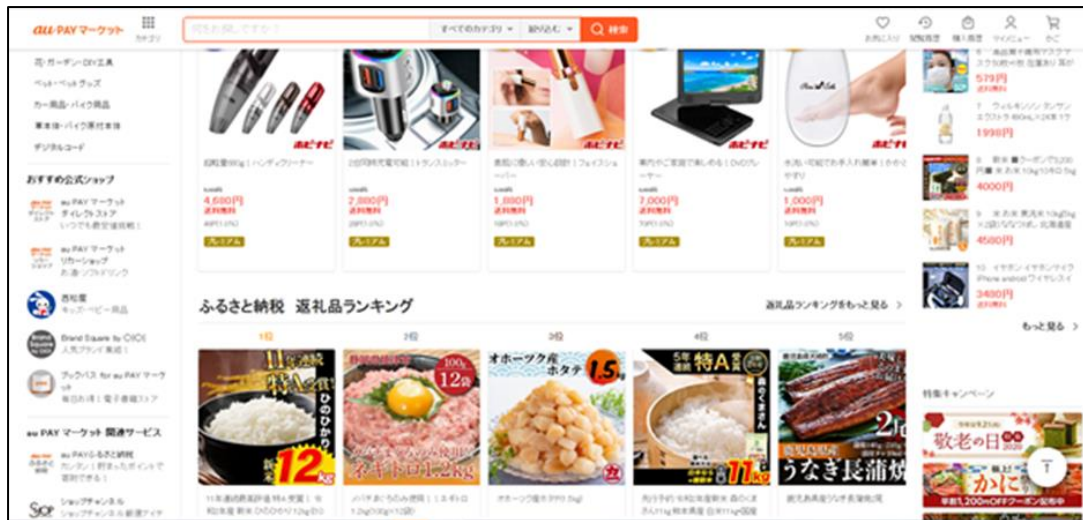
Therefore, by construction, local situational factors influence user expectations and therefore, UX designers usually take them into account when striving to maximize UX service quality. The term "situational factors" encompasses all the physical and temporal elements related to a course of action. This includes aspects related to an individual’s goals: their emotional state, what they seek to accomplish, their motivation, their skills, their choice criteria, the circumstances of their actions. But it also considers the characteristics of their physical environment that facilitate, slow down, or alter the direction taken in an attempt for users to achieve their goals.

Temporality-how feedback (positive or negative) is distributed across the subject’s action sequence, is essential to understanding the quality of the user experience. UX design specialists and video game designers understand this. However, there is always the risk that designers may formulate hypotheses by projecting personal mental schemas onto the user. This risk is increased by the fact that cultural factors are implicit dimensions that are difficult to perceive unless local insight is incorporated in deciphering the environment and how it is perceived by the local users.

Some neuroscientific insights look quite universal: for example, our brain naturally seeks to limit its cognitive efforts by adopting the path of least resistance. But the way they are manifested can be differ vastly depending on the cultural environment. For example, internet users whose languages use the Latin alphabet (26 letters) usually prefer simple and clean website pages and using search bars to navigate.



While users whose languages written form uses ideograms (3000 to 6000), more often prefer pages with layouts proposing multiple links nested in lists, often with lots of contrasting colours. This is primarily because for them navigating through and clicking on salient links is faster than finding and typing the alphabet phonetic version of the ideogram (and this habit has been reinforced at a time when internet speed was varying a lot). Indeed, choosing the relevant character from phonetic alphabet options (eg: Pinyin for Chinese, or Hiragana for Japanese), to use search bars represent an additional cognitive effort that links help to skip, and now image search too. But it also seems that multiple information accessible upfront has always built credibility at first sight for Asian users, following a “more is more” preference heuristic. Thus, Japanese, and Chinese websites may appear complex and busy to the eyes of a western user (or designer).



From the individual to the group: a detour through the layers of culture

Before addressing the second axis, that of social influences (interdependent and even cultural norms) on our behaviour, let's look at one model of Culture originally created to analyse the ecosystem of factors influencing health behaviour (Urie Bronfenbrenner, 1994) and (Whitehead & Dahlgren, 1991) shows how an individual is part of several groups (family,

school or work, community, institutions...). These embedded levels of influence are often illustrated like the layers of an onion or a rainbow. This model was later adapted for marketing (Hollensen H. , 2011) as brands became aware of their cultural dimension beyond that of their fan base. It shows how the same individual may belong to not just one culture, but several overlapping ones, each falling under one of a variety of groups.



Therefore, individuals in a group or a society, are influenced by the behaviour of others. But the converse is not always true. For example, when we adjust our behaviour such as how loud we speak, or how we dress at work to reflect the influence of our co-workers. These community codes can be adjusted through dialogue or negotiation. Conversely, some local customs and practices, such as whether or not to leave a tip at the restaurant or take shoes off when entering a home, are not really adjustable: they are dictated by cultural norms. The first example is one of two-way (interdependent) influence, while the second is an example of one-way (from society to the individual) influence.



Both of these types of influences are, nevertheless, governed by the same meta-concept in academic literature: that of social norms. While the former evolves rapidly by mutual influence between individuals (two ways), the latter is more stable and adopted during the process of socialization (one-way). To differentiate them as two distinctive polarities, we would therefore call the first, interdependent social norms (Bicchieri & Dimant, 2019), and the second cultural memes (inspired from Dawkins, 1976). Both contribute to an individual's sense of belonging to a group and signal what differentiates that group from another and are thus a part of what forms culture. But beyond the interdependence (one-way, or two-way) it is often the size of the group that differentiates one from another. Having said that, the axis is a continuum, and the boundaries remain porous because norms do not necessarily reach a stable state, and certain individuals can, exceptionally, change society.

3. Interdependent Norms: One Foot in Culture

A social norm is therefore an implicit rule that exists in a group, and one that an individual may choose to comply with or not based on with various degrees of risk. It is legitimized by shared use, values, or beliefs and trapped by institutional uses. The norms we define as interdependent are those that emerge within a reference network (family, work, organization). They arise from the interaction between the expectations of two or more interdependent individuals: adopting a specific behaviour because the people who matter to me practice it (descriptive norms), or because they expect it from me (injunctive norms) (Bicchieri C., 2017).

Interdependent norms govern the dynamics of collective behaviour, such as wearing a mask or practicing social distancing, and evolve rapidly in time. They emerge from thresholds of visible adoption between descriptive norms (actual practices) and injunctive norms (what is good to do). These norms can also constitute the codes of a microculture such as a group of teenagers, a profession, or a political group.

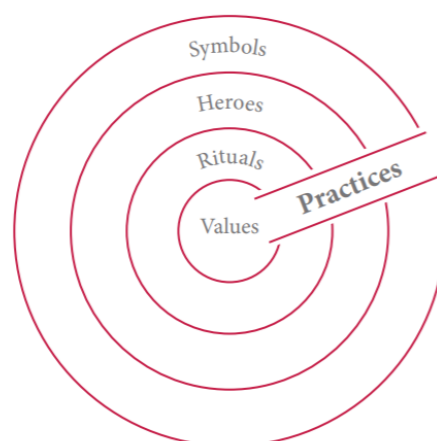
Traditionally, behavioural scientists use social norms as a means of encouraging certain action by referencing positive behaviour of the majority of other members within a selected group. "You could reuse your towel, like most of the hotel guests who have occupied this room" (Cialdini, 2003) or "We urge you to pay your taxes on time like 92% of taxpayers in your district". Marketers also use norms as social enforcement or reassurance: Product X is the "number 1 selling, preferred by mothers, recommended by 85 % of our customers" are go-to slogans to encourage purchases. But leveraging social norms can also backfire when

referencing a negative norm (if most people don't do it why would I), or when playing with social identity markers (for instance, the Pepsi Campaign with Kendall Jenner and Black-Lives Matter, or the Gillette Campaign that tried to deal with Toxic Masculinity have experienced major backlash).

4. Cultural Memes: Both Feet in the Culture

We use the term cultural meme (inspired from Richard Dawkins) to refer to a unit of cultural information that is transmitted during the socialization process. They are common units used for circulating ideas, beliefs, and behaviours within the same society. For example: signs of respect, moral rules, family values or ways of eating...Unlike interdependent norms, the individual has little influence on their modification.

To illustrate this, we can use Hofstede's culture model (another onion style presentation!). In this diagram values are placed at the centre (Hofstede, 1991). They are directly surrounded by rituals, then in turn by heroes, and finally by societal symbols. This diagram defines the most common meaning of the word culture, namely that of cultural heritage. Cultural heritage is reflected in cultural practices, and their stability depends as much on the history impregnated in the strata of society as on the aspirations of the collective. Therefore, these factors of influence can, basically, only be discovered locally, and often constitute a somewhat invisible context to those who have not been immersed in them for a long time.

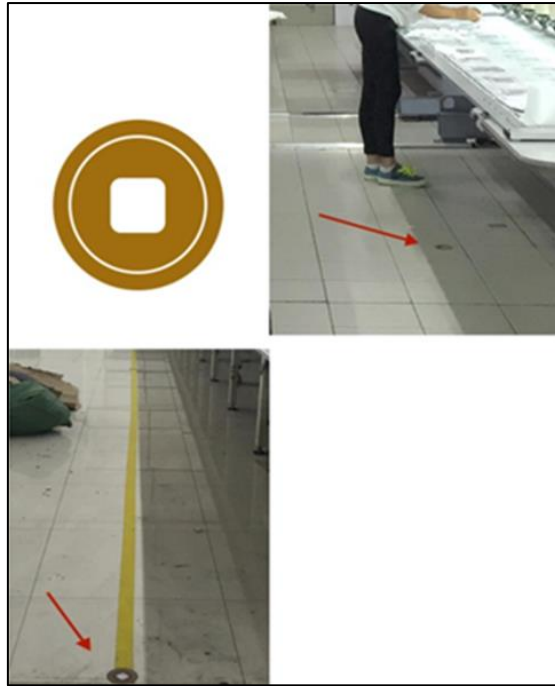


The irrationality of actors outlined by behavioural economists takes the principles of rationalization of the traditional (American) economics behaviour as the reference point. Any observed deviation from the classic theory is explained by an individual's biases or heuristics. Yet, anyone who does business in Asia knows that other rules of business relationships apply and that it can only hurt any attempt at doing business if they are ignored.

Feng-shui, for example, discreetly but absolutely governs trust in partners, dates of contract signings, and multiple other aspects of business dealings (Bruun, 2003). Some in the West might see it as irrational since it is based on superstitions and astrological precepts. But it is not a matter of biases or heuristics, it is a question of culture, one that blends philosophical tradition and spirituality.

Not only in business but in everyday life in Asia, multiple symbols play an important role and discreetly influence behaviour. Colours carry hidden meanings. How foods are mixed is often governed by hidden rules of traditional medicine. Numbers have powerful symbolic meanings. Some are considered to bring bad luck, others are auspicious and influence the dates of commercial events, the choice of phone numbers or even a license plate. These cultural memes inspire savvy marketers who know how to work with the culture of the country but can work against those who do not know how to interpret them.

There is a good academic example of how a uniquely Chinese cultural meme was used to encourage behavioural change in a research to resolve a workplace behavioural issue (Wu & Paluck, 2018). Workers in a textile factory were throwing scraps and waste on the floor. An intervention comprised of placing stickers in the form of an ancient traditional Chinese coin - considered an object that brings good fortune - on the factory floor was executed. The waste thrown down on the factory floor reduced by 20%. The gesture was seemingly inhibited by the threat of defiling this important symbol of good fortune. Beyond these results, the interesting thing about this nudge, is that only researchers who had the knowledge of this cultural meme, could have come-up with this coin intervention.



A further example of the importance of understanding cultural influence for interventions is the work of researcher Cristine Legare in Bihar, India (Legare & al., 2020). Her research shows that in attempts to modify perinatal preventive behaviour to mitigate risks to infants and mothers, the two types of medical practices exercised in India (biomedical vs. traditional) should not be pitted against one another but amalgamated because traditional medicine has strong unbreakable cultural roots.

To encourage the adoption of positive practices to improve health of new-borns (such as immediate and exclusive breastfeeding and avoidance of mustard seed and water us for umbilical cord care) her research found that it is preferable to work with the traditional medicine ecosystem while simultaneously engaging people participating to rituals.

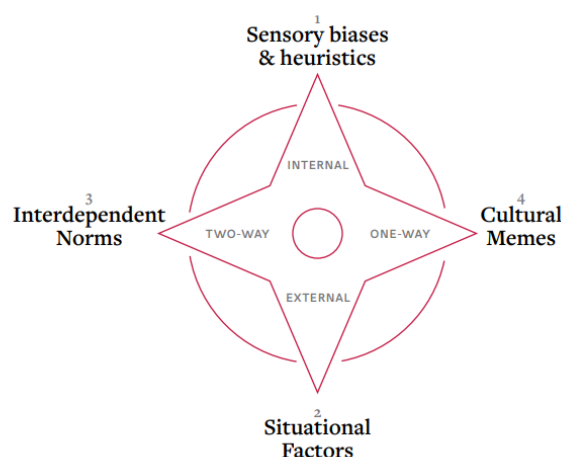
Attempts at universally forcing biomedical practices on families and caregivers in perinatal care (such as the Chhathi birth ritual) did not better the health of the mother or the new-born. However, designing new methods that respect tradition and introduce critical biomedical practices within existing rituals proved more successful as they were more easily socially accepted and as a result transmitted.

Conclusion:


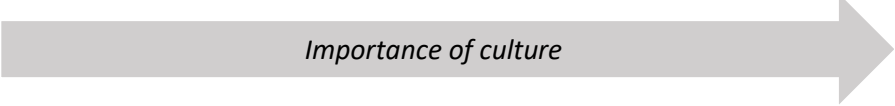
Advice to the Travelling Behavioural Consultants & Marketers

Whether you are a designer, researcher, marketer or..., if you are travelling outside your locality or culture, make sure you are well prepared for your trip!

- When heading out on a mission of behavioural discovery, it is best to travel light! Applying your best cross-cultural practices helps in leaving some of your own biases at home.
- When you draw up your itinerary, always start with a destination to decide which polarity of the compass is the most important to explore: define the behaviours you want to influence, and whether the individual is more a solitary actor there (Axis 1-2) or part of a complex social context (Axis 3-4).
- Avoid copy-paste itineraries developed for other locations and cultures. Effective interventions depend first and foremost on proper contextual intelligence. And a hypothesis is only true if it is tested on the ground.
- When your direction is set, mobilize the appropriate theoretical resources, and find relevant partners to create interdisciplinary research.
- And in the end, don't just read a guidebook, there is no better way to discover what is invisible to the foreign eye than to work together with a local guide who really understands the field, and can help you co-design a solution that both is relevant and acceptable by communities living there.



Here is a toolbox to choose your methods & academic inspiration from, depending on what is your context focus. (see resources in our extended working bibliography attached)

	<p style="text-align: center;">Individual diagnostic ...to... Social diagnostic</p> <p style="text-align: center;"><i>Importance of culture</i> </p>			
Influences	1. Cognitive Biases & Heuristics	2. Situational Factors	3. Interdependent Norms	4. Cultural Memes
What is explored	Impact of rapid decision-making modes, System 1 biases (reflexes, intuition, habits)	Effect of the physical environment (moment, location, sequence, affordance) on the subject's dynamics (circumstances, purpose, motivations)	Mutual influences between two or more individuals belonging to the same reference network/group (expectations, approvals, stigma...)	Inferences from shared representation and cultural elements of a society or group (language, customs, values, myths...)
Academic inspiration	Behavioural Economics, Neuroscience, Experimental Economics, Cognitive Economics, Psychology, UX Research, Design, Human-Machine Interfaces, Gamification, Evolutionary Psychology		Cultural Anthropology, Sociology, History, Semiotics, Social Psychology, Intercultural research, Network Science, and Systems Science, Game Theory, Mechanics of Social Games	

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