

# Cognitive Persuasion Approach to Win Business

Hemvati Pandey

**Abstract:** Over the years and with the availability of a variety of tools and positive influence of organizations like Association of Proposal Management Professionals (APMP), business proposals have gone through various changes in style and substance. This paper looks beyond the "design thinking" principles and the "golden sales circle" for winning businesses and tries to answer the "ideal approach document" problem by reviewing various scientific artifacts and research data available on human cognitive behavior. It concludes on with some impactful triggers and combinations that might work best in the interest of creating that winning business approach.

**Index Terms:** Business Cognition, Winning Business, Cognitive influence on Business, Business proposals, Business persuasion, Go-to-market, Sourcing strategy, Business and science, Psychology in business.

## 1 INTRODUCTION

**B**USINESS growth is a result of the intricate balance of simultaneous workforces. High performing businesses spend significant time on their strategy, sales process and go-to-market plans. What needs to be considered is the fact that business relationships are not rational; they are about feeling safe, feeling we belong.

There are six classic stages in a sales process; Lead generation, Lead qualification, opportunity presentation, business proposal, contract negotiation, and contract closure. Among these, three of the stages directly relate to the documentary evidence and proposals that we present to the client. The need of the hour is to have a more focused approach towards documentary messaging while paying significant attention to the structure and substance of these documents to make the customers feel exclusive and desirable. One size fits all or "this is what we do-pick what you need" approach does not meet the bill anymore.

To avoid ambiguity, all of the documents used at various stages of the sales cycle from now on referred to as "business proposal or approach."

## 2 APPROACH

Going back to the sales cycle, we understand that documents at each stage have a specific scope to be met and so is the content and substance. The document thus created invariably induces particular psychological behavior that eventually; knowingly and unknowingly influences the decision-making process.

Research data on human psychology and physiology beginning from the sensory information, assimilation, and conclusion studies about various triggers that influence the neurocognitive behavior. These triggers; color, valence, isolation, emotion, arousal under the purview of various psychological

*Hemvati Pandey is a practicing Thought Leader and Researcher on Business Strategy, Relationship & Partnership Management, Key Account Management, Sourcing Strategy, Business Proposals, Pricing & Contracts, and M&A. He is a graduate engineer in Aeronautics and a topper in engineering mathematics and has undergone executive management programs on Strategy and Pricing.*

E-mail: [san\\_pandey@hotmail.com](mailto:san_pandey@hotmail.com);

LinkedIn: <https://www.linkedin.com/in/hemvati-pandey-720b9233/>

laws and boundary conditions like heuristics and cognitive biases set the pitch for this paper.

## 3 UNDERSTANDING COGNITION

Ancient Greek philosophers, Plato and Aristotle, were the first to study about "how we think." Plato's view of cognition suggested that people first identify the fundamental principles buried deep inside themselves and then using rational thought to create knowledge, understand the world. His approach is referred to as rationalism.

Aristotle however, believed that people acquire their knowledge through their observations of the world around them. His definition commonly referred as empiricism.

Ulric Neisser, often known as the father of cognitive psychology was the first one in the modern times to define cognition in his textbook, "Cognitive Psychology" published in 1967. According to him, Cognition is about the processes by which the sensory input is transformed, reduced, elaborated, stored, recovered, and used.

Cognition today is understood to be "the mental action or process of acquiring knowledge and understanding through thought, experience, and the senses." There are multiple processes (Fig. 1) that support cognition or are part of the process such as attention, knowledge, memory and working memory, judgment and evaluation, reasoning and "computation," problem-solving and decision making, comprehension and production of language, etc. The term "cognition" is different to "cognitive abilities" or "cognitive skills." The latter being used for

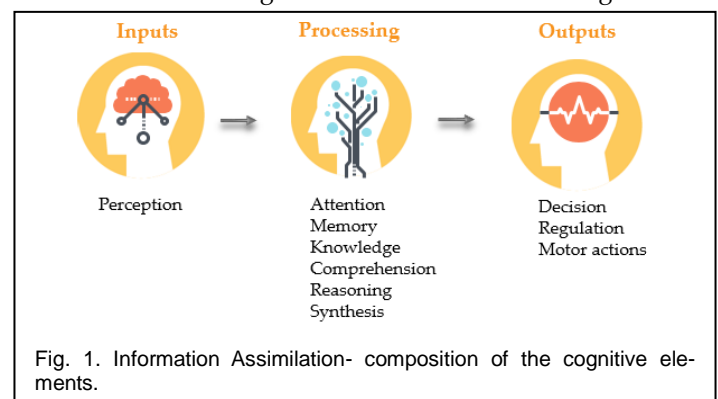


Fig. 1. Information Assimilation- composition of the cognitive elements.

mentioning about psychosocial interventions like cognitive behavioral therapy for specific neurological interventions.

Continuing from Neisser’s definition, we understand that cognitive psychologists study the sensory input, sensory information, elaboration of information, storing and recovering, and finally using it.

Putting this in perspective of business proposals where the objective is to win through documental evidence and presentations, the right behavioral and cognitive traits must be identified and worked upon.

*Cognitive traits associated with Attention, Memory, Registry, Persuasion, Creativity, etc. needs careful detailing in the document.*

#### 4 THE “THREE-PART” WORKING MEMORY MODEL

Proposed by Alan Baddeley and Graham Hitch in 1974 and then modified in 2000 illustrates the relationship among components of a cognitive system (Fig. 2). The system has Central Executive being the controller and regulator of cognitive processes; Phonological loop dealing with sound; Visuospatial Scratchpad being the store holding the visual information for manipulation, and Episodic Buffer which links information across domains to form integrated units with time sequencing.

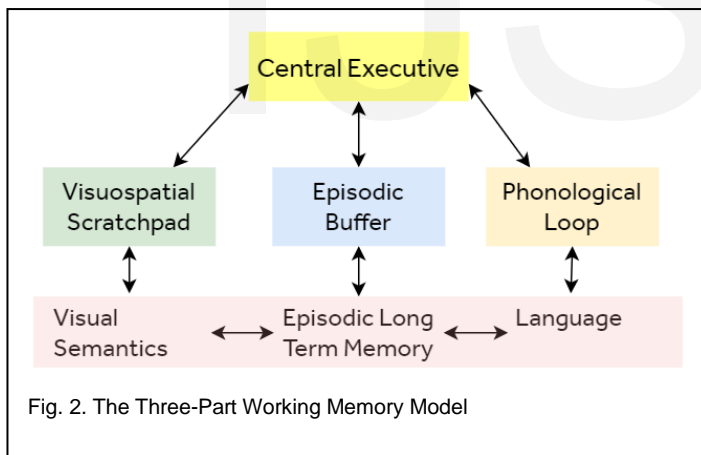


Fig. 2. The Three-Part Working Memory Model

The cognition model or the cognitive effect being studied in this paper, covers and relates to the areas highlighted in the brain anatomy (Table 1).

TABLE 1 TARGET FUNCTIONAL AREAS OF THE BRAIN	
Occipital lobe	Perception
Temporal lobe	Short Term Memory (STM), emotion
Parietal lobe	Somatosensory association area

Wernicke’s Area	Language comprehension
Cerebral Cortex	Motor function (Eye movement)
Frontal lobe	Higher mental functions (emotional expression, creativity, planning, concentration, judgment, inhibition, etc.)

#### 5 COLORS AND COGNITIVE PERFORMANCE

Colors are considered to be an integral part of human perception. Many everyday objects are designed to convey a message through colors. When we repeatedly encounter situations where different colors are accompanied by particular experiences and (or) concepts, specific associations are formed.

A well formulated and detailed research (Elliot et al., 2007) on “color and psychological functioning” suggested the following conditions as part of psychological conceptualization of colors and their effect on cognitive task performance.

- Colors carry an aesthetic value, but it also brings specific meaning and information based on the learned associations over the years.
- A mere perception of a color activates its learned association and impacts behaviors and cognition implicitly and unconsciously.
- The evaluative processes, due to the perception of color, influence motivated behavior.

It was observed that a brief perception of Red before a vital IQ test impaired participant performance, and was attributed to unconscious responses to the color association in achievement context.

*Impact of color on cognitive performance outside of conscious awareness needs assessment based on the “motivation” setting.*

Some common colors and their associations in the socio-

economic and personality setup can be seen in Fig. 3. These colors are representative of how, in general, we perceive and associate their relevance based on culture, personality, mood, inspiration, etc.



Fig. 3. Common Color Associations

So, we understand that the colors with a positive association would trigger an approach motivation and colors with a negative association would trigger avoidance motivation. What also matters is the context in which these colors are placed.

## 6 THE YERKES-DODSON LAW

Formulated originally by Psychologists Robert M. Yerkes and John Dillingham Dodson in 1908, the law on a bi-variate scale of performance and arousal postulated that performance and arousal follow a bathtub curve (Fig. 4). The law is claimed to be the most misinterpreted in cognitive psychology. In its original form, Y-D would predict that on simple tasks, stress levels of cortisol should enhance memory and on more complex tasks, stress levels of cortisol impairs memory. However, one problem with this law is that it does not create a distinction between “simple” and “complex” tasks.

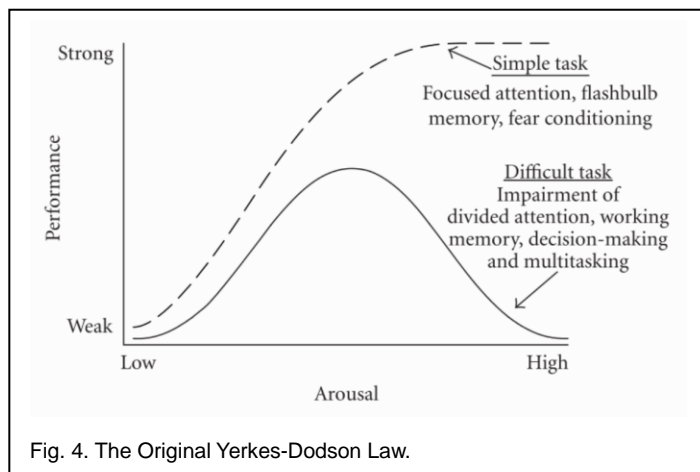


Fig. 4. The Original Yerkes-Dodson Law.

A research review on the effects of stress (glucocorticoids) on memory by Diamond et al. in 2007 studied stress-induced enhancement and memory impairment. Through “Temporal Dynamics Model” it was explained (Fig. 5) that flashbulb and

contextual memory indeed enhanced Long-Term Potentiation (LTP) in Hippocampus and Amygdala, but impaired the Prefrontal cortex in divided attention (multitasking) setup.

*In business dealings, one must take into account the LTP- brain synapses registry from previous similar setups.*

*When applying Y-D, evoking the focused and undivided attention must be thru a clutter free proposal approach.*

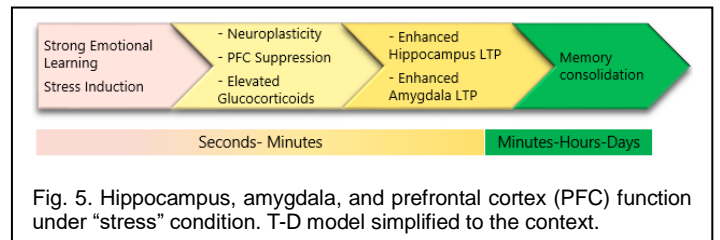


Fig. 5. Hippocampus, amygdala, and prefrontal cortex (PFC) function under “stress” condition. T-D model simplified to the context.

## 7 COGNITIVE MOTIVATIONS

Ravi Mehta and Rui (Julia) Zhu at Sauder School of Business, the University of British Columbia in 2009 conducted various studies to test the avoidance (Red) versus approach (Blue) hypothesis. Three of them are mentioned here.

In the first study subjects (n=69) were randomly assigned to Red, Blue or neutral background condition with the approach, avoidance and neutral valence anagrams, and the response rate was recorded (Fig. 6).

- For avoidance related anagrams respondents in Red condition registered a faster response.
- Approach-related anagrams had Blue respondents being faster.
- Neutral anagram respondents reportedly had no effect

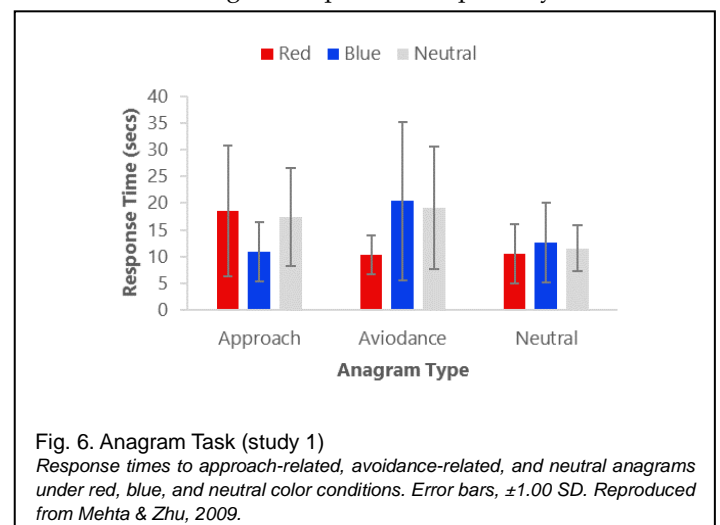


Fig. 6. Anagram Task (study 1)  
Response times to approach-related, avoidance-related, and neutral anagrams under red, blue, and neutral color conditions. Error bars,  $\pm 1.00$  SD. Reproduced from Mehta & Zhu, 2009.

-under all three color conditions

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*From a business standpoint it is safe to theorize that Red triggers a faster cognitive response in the negative word valence setup while Blue does the same in a positive valence setup*

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In the second study (n=208) consisting of a detail-oriented task (memory recalls) and a creative task (various uses of brick) against red, blue, neutral backgrounds it was observed that:

- The approach motivation (Blue) results in better performance on creative tasks (Fig. 7).
- The avoidance motivation (Red) results in better performance by the subjects in detail-oriented tasks (Fig. 8)

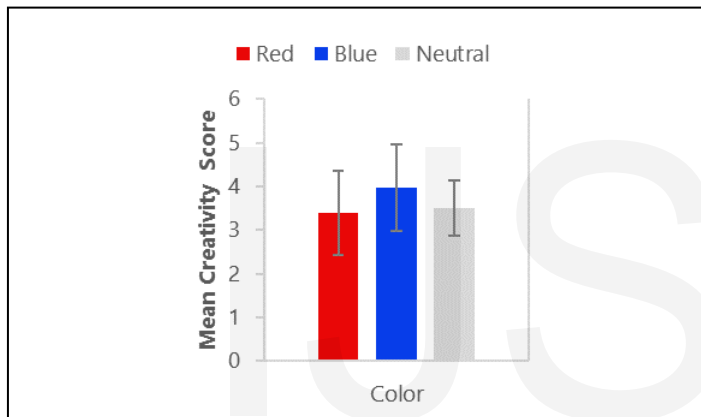


Fig. 7 Creative Task (study 2)  
Mean creativity scores for the brick task. Error bars,  $\pm 1.00$  SD. Reproduced from Mehta & Zhu, 2009. Reproduced from Mehta & Zhu, 2009.

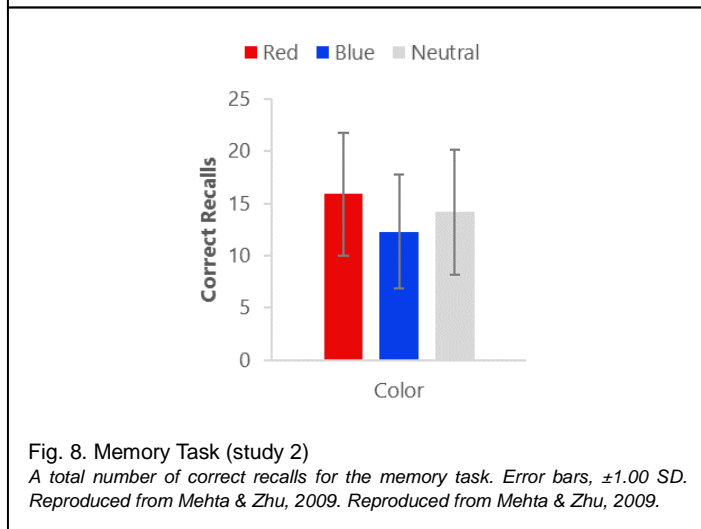


Fig. 8. Memory Task (study 2)  
A total number of correct recalls for the memory task. Error bars,  $\pm 1.00$  SD. Reproduced from Mehta & Zhu, 2009. Reproduced from Mehta & Zhu, 2009.

The outcome suggests that Red (warm colors) in the specific business setting maybe tactically used in impactful messaging aiding in faster recalls and better cognitive impact. Simi-

larly, Blue (cold colors) may be used in scenarios such as solution depiction, architecture diagrams, process flows, design drawings, etc. for higher cognitive response.

In a persuasive messaging study, n=161 (Mehta & Zhu, 2009) two identical digital camera themed advertisements were used. First one with visuals offering detailed product information (e.g., lens) under Red background conditions and the second one with a creative representation of objects with the remote association (e.g., a map, a road sign) with a Blue background. As hypothesized from study-2 the following was noted:

- Under the Red condition, participants formed a more favorable response when the ad included detailed product visuals.
- In contrast, under the Blue condition participants were in favor of the remote visual associations.

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*"Detail" oriented cognition is supported well by Red condition while Blue favors "creative" cognition.*

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## 8 THE VON RESTORFF PARADIGM

The theory coined by the German scientist, Hedwig von Restorff hypothesizes that the presence of a distinctive stimulus in a homogeneous mixture of stimuli will stand out. This distinctiveness can be about color, shape, size, style, background, meaningfulness, etc.

Of the various explanations for the distinctive handling of the stimuli by the memory, the total-time hypothesis (Cooper EH & Pantle AJ 1967; Siri-Maria Kamp et al. 2016) suggests it may be due to isolated items staying longer in the working memory leading to a relative increase in rehearsal vis-a-vis non-isolated items. However, in a free-recall setup, the isolated items proved to being in their unique category and may be influenced by the time, series, traces, and compartmentalization.

The modern theory holds that the contextual incongruity of the isolate is what leads to the differential attention to this item. Empirical data indicate a strong relationship between the von Restorff effect and measures of an Event-Related Potential (ERP) in the brain which generates high latency and amplitude ERP, indicating a faster recognition of the items (Fig. 10 and Fig. 11).

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*Creation of Isolated items in the working memory is a powerful tool for the business approach documents.*

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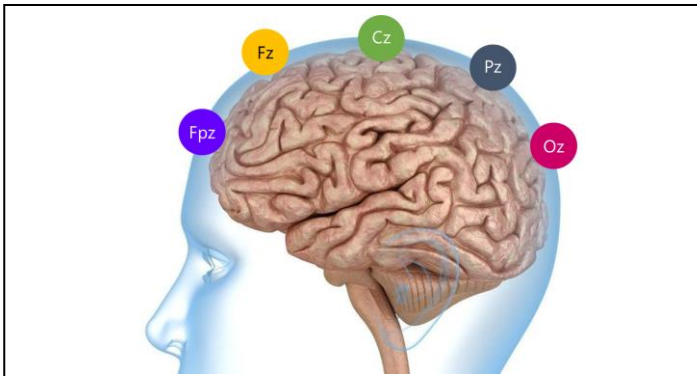


Fig. 10. Midline electrode sites for ERP-Event Related Potential recording.

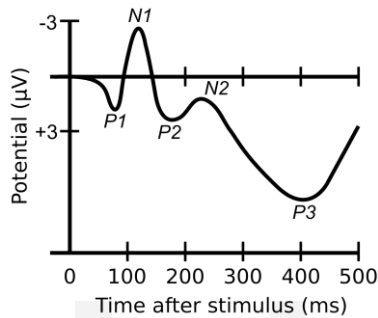


Fig. 11. ERP waveform with amplitudes against latency. At FPZ (N1), FZ (P2), CZ (N2), PZ (P3), and OZ (N3) SITES.  
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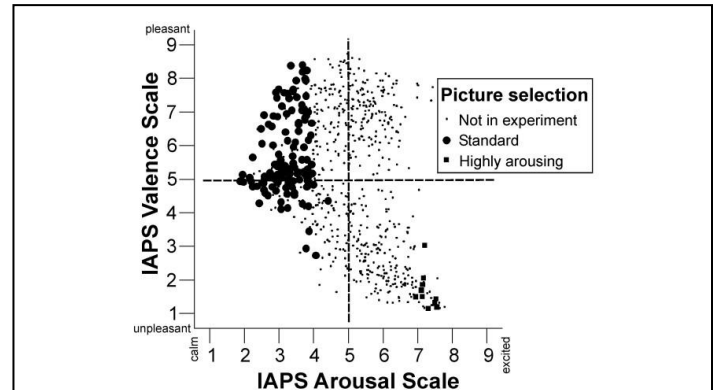


Fig. 12. . Cognitive remembrance on image arousal and valence.  
Chart from Wiswede et al., 2006

Citroen (2011) in a review of 15 recent electrophysiological and hemodynamic neuroimaging studies of Neural correlates of written emotion word processing indicated that emotional Valence and Arousal have shown to be directly affecting various stages of word processing and recruit brain regions associated with critical domain-general cognitive functions.

An electroencephalogram (EEG) based study (Heloisa Veiga et al., 2004) on visual Event-Related Potential (P300) observed that with the subject age, the P300 (Fz, Cz, Pz) latency trended upward (roughly between 300-425 ms), and the amplitude trended downward at all the electrode sites (between 6.5-0.5  $\mu$ V).

## 9 CORRELATION BETWEEN VALENCE & EMOTION

The importance of Valence (image or word) in cognition comes from the documented fact that as compared to infants where the colors are processed in the right hemisphere, in adults, colors are processed in the brain's language centers (left hemisphere), hence refracted by the concepts we have for them.

Wiswede et al., 2006 noted from earlier work on the effect of pictures on pleasure and arousal (Bradely et al., 1992) used an immediate and one year delayed free recall protocol. The subjects were provided with International Affective Picture System (IAPS) categorized images on the scale of valence (unpleasant to pleasant) and arousal (calm to excited). The following was noted (Fig. 12) during recall:

- Images classified high on the Arousal scale were recalled better than the lower ones even after one year.
- On the valence scale-pleasant, slides were remembered slightly better than unpleasant

*The neural correlation of Emotion assumes interactions between Amygdala and Cortical regions generating "arousals" while "valence" reflects Prefrontal cortex involvement.*

*ERP (P300) is associated with age implying a decline in cognitive processing with age although with high dispersion along the first order regression line.*

In a memory recall task based on von Restorff paradigm (Wiswede et al., 2006) 18 subjects were presented with word lists in which one word was made distinct varying the essential characteristic (color) and non-integral (background with varying valence). The following was recorded:

- Recall performance was significantly better for the "color" condition as compared to the "standard" and "background" conditions (Fig. 13).
- Image valence high on arousal scale shows a delayed P300 response while that of "color" show significant amplitude at lower latency. Thus, indicating the effect of color being higher on ERP WRT Image valence (Fig. 14). Although, both these conditions had a significant advantage over the "standard" condition data.

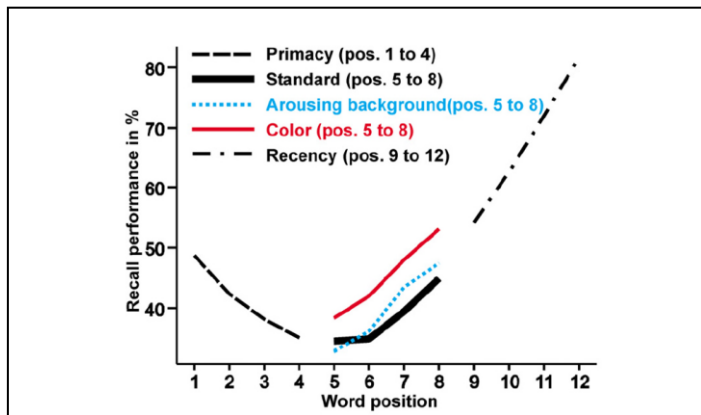


Fig. 13. Word “recall” performance as a function of its “position.”  
Chart from Wiswede et al., 2006.

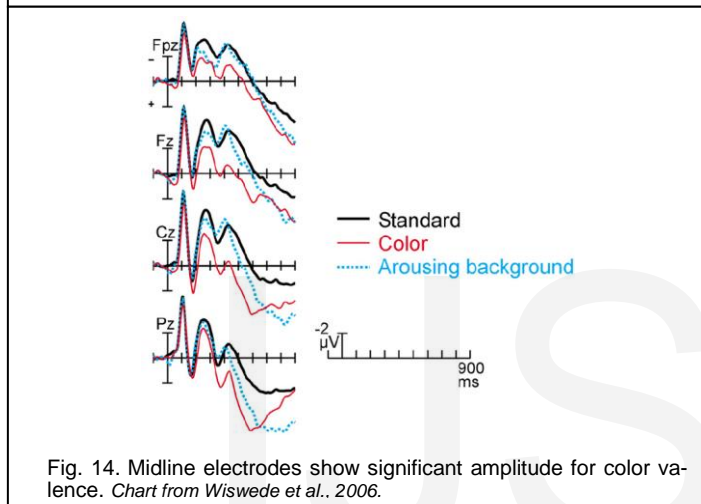


Fig. 14. Midline electrodes show significant amplitude for color valence. Chart from Wiswede et al., 2006.

*Color condition triggers higher amplitudes and low latency ERPs as compared to higher arousal image valence.*

More recently, So‘derholm et al., 2013 using 420 Finnish nouns (categorized as positive, negative and neutral) with native Finnish respondents (n=996) documented the mean valence and arousal ratings (ERP deflection) in the bivariate affective space as curvilinear (Fig. 15); which means that the nouns rated as either positively or negatively valenced were also rated high on arousal than the emotionally neutral ones (Altarriba and Bauer, 2004).

*Successive studies have demonstrated that positive (pleasant) and negative (unpleasant) valence clearly holds the cognitive arousal advantage over neutral.*

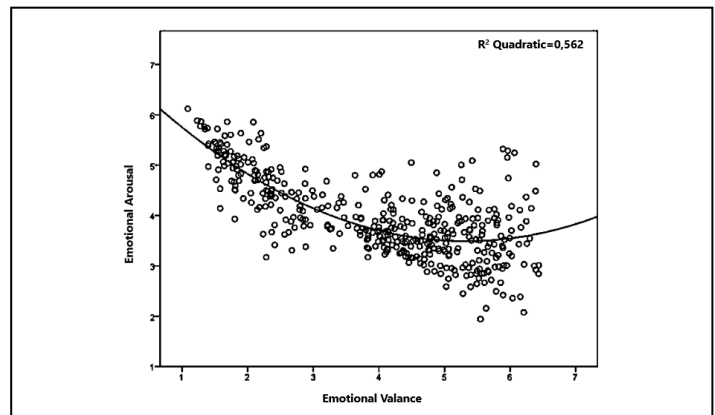


Fig. 15. Correlation between Word “valence” and “arousal.”  
Chart from So‘derholm et al., 2006.

## 10 THE REGULATORY FOCUS THEORY

Also called Goal attainment theory formulated by Tory Higgins documents on how people look into their goals in promotion and prevention focus.

Promotion focus helps perceive goals as hope and aspiration hence the subjects are more aware of positive outcomes or are positive outcome focussed.

Prevention focus makes the subjects perceive the goals as safety, security, responsibility and are focused on prevention of adverse outcome.

Overall, the Regulatory focus is a psychological state and can differ both across individuals and across situations. But when we see it in the light of cognitive persuasion in business, we understand that feeling of the correctness of the incoming information generates positive emotions and makes the subject more committed while the feeling of incorrect or incomplete information triggers a negative cognitive behavior.

*The business approach must be “positive regulatory focus” centric and all the required actions need to be in the target.*

## 11 COGNITIVE BIAS AND HEURISTICS

Cognitive bias is a deviation from standard judgment rationality hence bring in irrationality in perceptual behavior based on past mental rules. The biases are presumed to enable faster decisions when timeliness is more valuable than accuracy and may often result in incorrect decision making.

To support quick decisions, the biases filter out significant data coming in from the sensory inputs such as:

- Too diverse, detailed, scattered information
- Data with inadequate meaning
- Requiring a quick turnaround
- Inability to comprehend the massive chunk of data for memory reasons

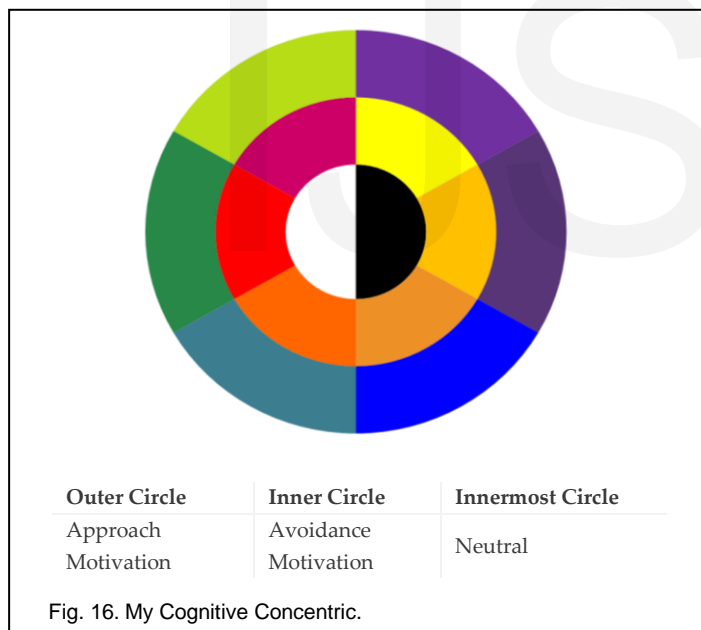
*It is important to understand the business requirements and follow the overall data assimilation process in order to avoid the cognitive biases, especially WRT time, information spread and messaging.*

## 12 CONCLUSION

To derive the maximum cognitive response from the business proposal one must focus on finding the best way to manipulate the working memory especially the visuospatial scratchpad and the episodic buffer using a blend of the following:

### 12.1. Detailed versus Creative

The color condition has a higher cognitive impact than valence and arousal. So, the focus must be on positive cognitive colors to set the psychophysiological tone. Effective use of selective contrast, makes audiences remember the outstanding item – and even the entire message – better. Fig.16 is my take on the colors that can be used for highest cognitive impact and tactically for background and accent.



- Outer circle (approach motivation) colors may be used in creative tasks and scenarios such as solution depiction, architecture diagrams, process flows, design, drawings, etc. to achieve a better cognitive response from the reader. It also promotes and stimulates interactions.
- Inner circle (avoidance motivation) colors may be used for detailed tasks and as occasional accent color to draw attention to a crucial messaging evoking faster cognitive recalls.
- Innermost circle (neutral) promotes cognitive neutrality

and can be used for the usual content for simplicity and finality.

Perception-based advisory: some colors like Blue are used too much and too often in business and are often associated with content staleness or tagged as unoriginal. So, infusing them with some originality and textures will help.

### 12.2. Find the correct Valence

Valence forms the next best influencing part of a document. Both Image and Word valence have shown to have significant midline ERP deflections in EEG recordings. So, choice of words must be tested against the arousal it can generate. All three; positive, neutral and negative (high arousal) valence can be used tactically. Same applies to image valence.

### 12.3. Create Isolated items

Isolated items have shown to significantly impact the working memory with higher recall rate even a year since the episode. One must create contextual incongruity of the isolate for differential attention in order to derive higher ERP and favourable cognitive impact.

### 12.4. Set the right focus

The document’s goal must be “promotion” focussed and not “prevention” focussed. The Regulatory Focus theory refers to the correctness of the incoming information for this and sets the reader into cognitive persuasion mode.

### 12.5. Manipulate Cortisol for performance

Cognitive arousal is associated with the stress cortisol levels hence affecting one’s performance in the task. Here, one needs to create non-distracting stimuli and create a weapon-focus phenomenon to elevate performance. Understanding of Fear conditioning and flashbulb memory can play a crucial role in generating favorable Long-Term Potentiation (LTP).

### 12.6. Assembling the Elements

There can be multiple ways of creating a perfect approach document based on business goals, strategy and customer profiling. However, taking guidance from this study, the following may be considered as a simplified scientific business approach guideline covering some specific document sections in Table 2.

TABLE 2  
ASSEMBLING A BUSINESS PROPOSAL

Section Purpose	Motivation	Valence	Arousal	Effect*	Concentric^
Summary and general	Neutral/ Approach	Neutral	Neutral	-	IM
Key message/ Value	Avoidance	Pleasant	High	VR	IN
Scope	Neutral	Neutral	Neutral	-	IM
Partnership model	Approach	Pleasant	High	VR/YD	OU/IM
Proposed Solution	Approach	Pleasant	High	VR	IN/OU
Key Charts/Design	Avoidance	Pleasant	High	YD	OU
Benefits	Avoidance	Pleasant	High	VR	IN
Project Risks	Neutral	Neutral	Neutral	YD	IM/IN
Pricing Proposal	Approach	Pleasant	High	VR	IM/OU

\* VR- von Restorff | YD- Yerkes-Dodson; ^ IM - Innermost | IN- Inner | OU- Outer

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