

Semiotic Inception, Attitude Altering, and Behavioural Expression: Understanding the Foundation of Organizational Knowledge Construction

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Abstract: This study explores the theory of semiotics and how it is processed in the cognitive space of a person (a complex adaptive system) with a focus on an individual's response to persuasive arousal, how behavior is altered, and how habits are formulated. The study involves reviewing on the theory of semiotics, attitude altering, and behavior enactment. An SIAB framework is constructed from the combination of multiple fields of knowledge domains. The proof of the framework construction validity is verified by systematic literature review and meta-analysis techniques on the past marketing semiotic research. The framework can explain how humans incept the sign, how the sign influences attitudes, and how behavior is expressed. The SIAB framework can be the foundation to explain how individual knowledge is constructed, which can support many future studies.

Keywords: Semiotics, Attitude Altering, Elaboration Likelihood Model, Behavioral Control and Expression, SIAB Framework

1. Introduction

Semiotic analysis is a process related to interpreting the notions of signs and developing understanding and expression (Kuzu, 2016; Louhema et al., 2019). It stands for something iconically, indexically, or symbolically to convey the meaning that may include abstract, theoretical, non-observable, or non-existent objects and properties (Queiroz and El-Hani, 2006; He and Shao, 2018). Semiotic theories developed along two grounds of two significant theorists; one is a Swiss linguist Ferdinand de Saussure and the American theorist Charles Sanders Peirce (He and Shao, 2018). Saussure's theory focused on the linguistic sign composed of a two-sided concept called a signified and a sound-image named a signifier (Wells, 1947; Richter, 1998). Saussure is based on verbal meaning and association between the signifier and signified.

Peirce looks at semiotics as a process of visual communication with cognitive interpretation with social and cultural influences presuming lexical, verbal, and lingual understanding (Moriarty, 2002). Peirce's approach is straightforward in terms of the three types of signs: iconic, indexical, and symbolic, where an icon refers to an object which denotes the character its own, and the index refers to an object that represents the value of being itself, and a symbol refers to an object that indicates the thing that obeys by some code of conducted or governed by law (He and Shao, 2018).

The semiotic theory has been used in the neuromarketing field to induce sales by altering consumer behavioral patterns and studying human behavior in daily life situations (Cherubino et al., 2019). The application of semiotics theory raises how a sign impacts a person's preference and response.

Human is a complex adaptive system (CAS). Complex systems consist of many interrelated parts that may or may not have nonlinear relationships, feedback loops, and dynamic uncertainties that are difficult to understand and predict. Complex systems can create global emergent properties from their elements and interactions. Yet, those characteristics

cannot be easily traced back to the connections because of the nonlinearity and unpredictability of the features and relationships (Bennet and Bennet, 2013). These emergent properties make the whole system very different from the sum of its parts. Co-evolving through both responsive and proactive adaptation to its environment, a CAS has partially ordered systems that evolve while operating at some level of perpetual disequilibrium, which contributes to their unpredictable behavior. For semiotics to affect human behavior, further exploration is required to understand the mechanism of how humans interpret the inception of a sign that leads to the expression of action.

This research explores the theory of semiotics and how it is processed in the cognitive space of a person with a specific focus on an individual's response to persuasive arousal, how behavior can be changed, and how habits are developed. A model is constructed from the literature review to identify how the semiotic analysis system and behavior change procedural system works. The completed model combines the inception of arousal information, the altering process of attitude, and the determination of how to express the behavior. The elaboration Likelihood model explains how attitude altering happens. The matrix analysis of behavioral resolution for expression identifies the expression of behavior in responding to the arousal.

2. Literature Review

The literature review provides related theories on semiotics, how information is cognitively processed, and how the responding behaviors are expressed.

2.1. Peircean Semiotic Triadic Framework

Peircean Semiotic Triadic framework starts with the sign. The sign is the notion that symbolizes the object. A sign can be in the form of iconic, indexicality, or symbolic. These forms of signs are called the "Representamen." The sign refers to something it represents, called an "Object." Peirce called the representation of the sign with the real-world object the "Interpretant." The interaction between the three functions forms the process of meaning or "Semiosis" (Chandler, 2017). The Peircean model is a triadic relation in which the sign acts as the mediator between the object of the word and the concept in mind. Semiosis is the process of representation. The process involves the sign representing an object to the mind. In other words, representamen represents an object, having the interpretant as the mediating representation.

The sign must represent the meaning. Otherwise, it is not a sign. However, to pertain to the meaning, the sign must be translated into another sign until the meaning is fully developed. Therefore, semiosis can spawn with another semiosis, representing the original sign to make meaningful interpretants. This recursive property led to a hermeneutic cycle of communication language construct (Chandler, 2017) and called this chain of semiotic interpretation a "syntagmatic relations" (Louhema et al., 2019).

Saussure's theory mentioned that the sign has a dyadic relation of signifier and signified (Yakin and Totu, 2014), while in Peircean theory, the signifier part is called representamen. The signified part is the referent of the object. Still, the representation of meaning cannot happen without the interpretant part. In other words, representamen is the physical or material form that explicitly exists and can be distinguished by human senses. At the same time, the interpretant is the abstract form that happens in the cognitive space of the human mind (Yakin and Totu, 2014).

In comparison, the dynamic interpretant process is the process that realizes the meaning of the sign to the interpreter. Bradley (2016) identifies the differences between Icon, Index, and Symbol. An Icon has a real connection between signifier and signified. For example, a photograph of the dark cloud, an icon, has an image object (the cloud) that resembles the signifier and the representative part that defines the meaning of that image object (about to rain). An Index has both the signifier and signified part, where a signifier cannot exist without the signified. For example, an image object of a floppy disk, which is classified as an index, on a word processing application represents the meaning of how to save the file. A Symbol does not have any connections between signifier and signified. For example, a school emblem is a symbol that has no meaning to anyone except the students from that school. The meaning of a symbol must be learned to understand what it represents.

However, according to Keeler and Kloesel (1997), a theory must have a relationship between two separated items. The traditional Saussure's dichotomous theory of signifier and signified lacks a defined relationship between the two entities.

Saussure's concept cannot explain the meaning of thought and communication when reading a sign and cannot explain the uniqueness of the sign's meaning. Thus, Saussure's theory can only be understood as a theory of language. The Peircean semiotics concept focuses on visual communication. Consequently, the interpretant process is more visible than the verbal inference (Moriarty, 2002). This process makes Peircean semiotics theory a theory of "knowing" rather than a theory of language.

2.2 Semiotics and Multimodality Stimulus

Sign in Semiotics interrelates with other signs to form semiotic systems (Louhema et al., 2019). The human universal semiotic system uses language, gesture, and depiction as the medium for expression (Zlatev, 2019). Language appears in the form of speech, writing, and signing. Gesture appears in the form of visual presentation of the body. The depiction is the material produced as the visual medium for communication. Semiotic analysis has been widely used in the Sensory marketing (Lwin et al., 2016). Multimodality has been exploited to fully captivate the essence of marketing communication using metaphoric referent Fields (Forceville, 2017). Metaphoric referent requires two common principles: the communicator (source) and the communicatees (target). First, the metaphoric subjects must have shared understanding and experiences between the two sides, and second, the comparative properties of the two subjects are not reversible (Forceville, 2017).

The Semiotic theory focuses on studying the sign system and interpreting the meaning to reach the referral object in nature. However, it does not explain how the sign system impacts human attitude and how behaviors are enacted. Therefore, a deeper exploration of how humans behave needs to be examined.

2.3 Behavioral Change and Cognitive Process

Human behavioral change relies heavily on the cognitive mechanism (Bandura, Adam and Beyer, 1977), the mind, and emotions and feelings. According to social learning theory, behavioral changes are caused by affective attitudinal changes (Rokeach, 1966; Mason, 2001), with the strength of an attitude characterized by its persistence and resistance to change as well as an ability to predict behavior (Petty et al., 2003). Attitude—which includes our evaluation of feelings or a predisposition to a class of stimuli—has three components: cognitive (beliefs and knowledge), affective (emotions and feelings), and behavior (Rosenberg et al., 1960).

A significant cause of attitude change comes from persuasion (Petty and Wegener, 1998), which induces changes in opinions, beliefs, and attitudes but is not always consistent. "Thinking" is mainly unconscious, and "the unconscious can influence our thoughts and emotions without our awareness" (Bennet, Bennet and Turner, 2015, p. 112). Persuasion in a heavily saturated misinformation and disinformation environment has conscious and unconscious effects. The term "persuasion" alludes to conscious intent and some level of awareness on the part of the addressee.

Petty and Wegener (1998) described the process of attitude changes using the Elaboration Likelihood Model (ELM). The ELM is a theory responsible for processing the persuasion information and producing the attitudes' low or high level of mental effort. The person who possesses a high level of object-relevant information will likely elaborate on the knowledge and reach the reasoning attitude well-articulated and bolstered extensively by supporting information. This elaboration is called the "Central Route." On the other hand, the person who possesses a low level of object-relevant details will be unlikely to utilize knowledge and base their reasoning on emotion. Personal preference is called the "Peripheral Route." Low effort processes change attitudes weaker than those changed by high effort (Petty, Cacioppo and Schumann, 1983).

For a high effort process to influence attitude change, a person must be motivated to think. To have the ability to think, the person must have the necessary resources and opportunity to engage in the thinking process (Petty and Brinol, 2010). In this process, the person is either exposed to the same type of information that person is accustomed to or has general knowledge about the topic with issue-relevant information.

The information integration process starts when the information is combined to form attitudes in responding to an individual's thoughts on a persuasive response. According to Petty, Wheeler, and Tormala (2003), three aspects of cognitive responses are essential. First, the content of thoughts is the extent of persuasion that is likely to be adequate to

be motivated. Second, the number of thoughts is the number of persuasive communications to affect how many people are encouraged. Third, the confidence of thought is the confidence or doubt the people have in the validity of the persuasion.

If information comes from an expert, the information is considered to have a significant impact on biased attitude responses. Therefore, expertise is regarded as a highly influential factor. Furthermore, information from experts affects the attitudes without much thinking. Hence, an expert suggestion can bias the thought process (Eagly and Chaiken, 1993).

The attitude developed with knowledge and persuasion that follows the central route will strongly impact that person's behaviors (Cacioppo et al., 1994). The peripheral route is followed if a person is not keen to explore the deeper detailed information. Since the ELM model depends on the amount of based information, the size of the ELM can vary if a person pays attention to the perceived information. The attitude on the peripheral route can transfer to the central route. Therefore, the ELM is a continuum model.

There are five distinct characteristics of dual attitude theory. First, explicit and implicit attitudes co-exist in the memory (Wilson, Lindsey, and Schooler, 2000). Second, the implicit attitude is activated unconsciously, while the explicit attitude requires more capacity and motivation for the retrieval (Wilson, Lindsey and Schooler, 2000; Petty et al., 2003). Third, the implicit attitude response is an uncontrollable and unspontaneous (Serenko and Turel, 2019). Fourth, the explicit can be changed effortlessly, while the implicit requires higher efforts (Wilson, Lindsey and Schooler, 2000). Lastly, Changes can be done only to the explicit attitude, and the changed attitude will later become an implicit attitude (Petty et al., 2003).

When expressing behavioral expression, the manifested behavior can be categorized into four types (Wilson, Lindsey and Schooler, 2000); Trueself, Over-thinker, Disguise, and Autonomous. Figure 1 represents the behavioral expression matrix.

Ability to Control of Explicit Attitude Over Implicit Attitude?	Yes	Disguise <i>"disguise trueself"</i>	Autonomous <i>"habbit"</i> Central Route
	No	Trueself <i>"Instinctive Response"</i> Periperal Route	Over-Thinker <i>"Hesitant Response"</i>
		No	Yes
		Aware of Expressing Behaviors?	

Figure 1: Behavioral Determination and Consideration Expression Matrix

"Trueself" is when a person's implicit and explicit attitudes are separately developed. The person is unaware that they have both perspectives, which work in disassociation from each other. In this mode, the person shows their true feelings when aroused by the information. As explained by the ELM continuum model, this will be along the path of the peripheral route, and the impact will be temporary.

"Over-thinker" is when a person is fully aware of the implicit attitude and will control the expression by overriding it with a different perspective. At the same time, the person may become unaware and express the unwanted attitude unintentionally. Once recalled, he will try to conceal his behavior and express the opposite. In this mode, the person will spend time thinking about how to react when aroused by the received information. When unaware, the person may

respond instinctively, then later try to conceal and show the behavior as what he wants others to see.

“Disguise” is when a person can control an implicit attitude. Still, curiosity overrules the feeling to disguise the inner instinct and let the motivation activate the cognitive capacity of implicit attitude. We can also call this anxiety-provoking mode since it can be dangerous when hiding the true feeling and may express as the opposite. An example in this quadrant is an LGBT person trying to conceal their identity but is still very interested in learning about the cultures or stories of other LGBTs.

“Autonomous” is when the explicit attitude automatically overwrites the implicit attitude. This mode happens unconsciously, just like the "habitual" process. An example of this mode is when a person repetitively engages in message elaboration comprehensibility cognitively, which the changed attitude and altered behavior may have impacted. According to the ELM continuum model, this will be along the path of the central route with biased information and knowledge for permanent implicit attitude change and behavioral impact.

2.4 Research Question and Research Framework

Semiotic theory alone cannot clarify the mechanism of how a sign can impact human behavioral expression. Psychological theories of EMT and the dyadic decision-making model indicate the internal processes of the human cognitive system of how attitude can be amended and impact behavior. Multiple-domain theories must be combined to explain the inception of semiotic information and how a human has processed it to have the behavioral expression as required. The novelty of this study is the construction of the Semiotic Inception, Attitude Altering, and Behavior Expression (SIAB) framework, as appears in figure 4. The terms and the descriptions of each milestone phase are shown in table 1.

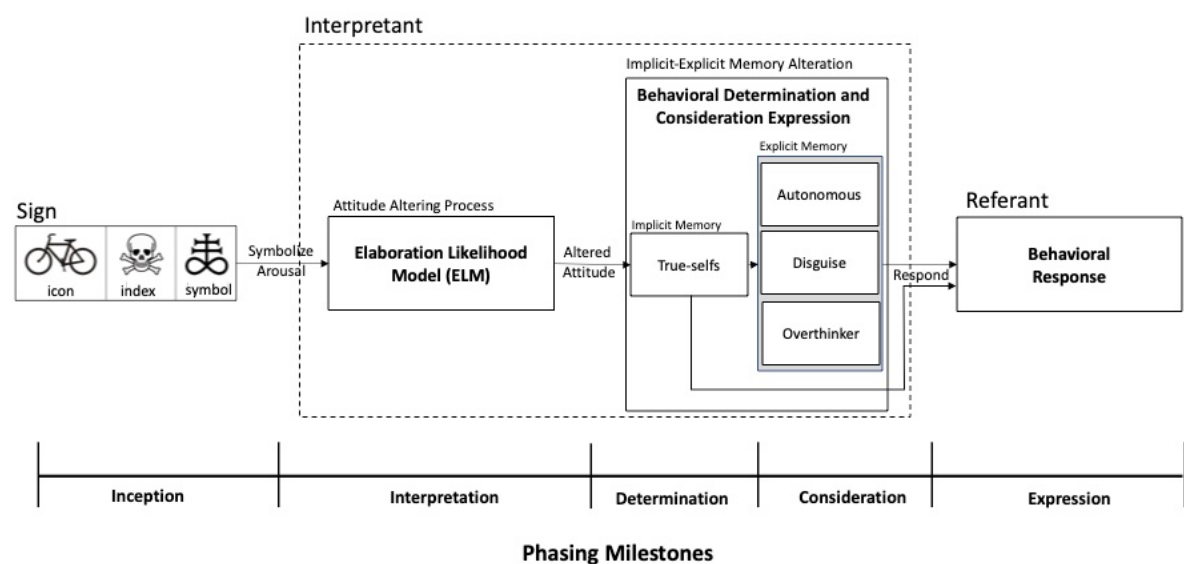


Figure 2: Semiotic Inception Attitude Altering and Behavior Expression (SIAB) Model

Table 1: Thematic Categorizations of Reviewed Journals

Theme	Description
Inception	In-coming of semiotic arousal information
Interpretation	Interpret the meaning in association with the Sign
Determination	Elaborate Likelihood Model (ELM) on Attitude Altering
Expression-True self	React with a direct un-altered response
Expression-Suppressive	React with disguised behavior
Expression-Overthinker	React with direct behavior, then cover up with disguised behavior
Expression-Autonomous	React with habitual behavior
Others	Semiotic research is conducted in other areas outside interest
Irrelevant	This research has nothing to do with the semiotic study

This leads to the following Research Questions (RQ):

RQ: How does the SIAB model, which constitutes a semiotic theory, the ELM continuum theory, and behavioral matrix, fit to explain how humans process the incoming information and express the behavior and in which manner?

3. Epistemological Approach and Research Methodology

3.1 Epistemological Nature of Semiotic Study

Putting the semiotic process into context requires dialectic relations with persons' cultures, exposures, mindsets, social relations, and the material worlds they are engaged in (Fairclough, Jessop and Sayer, 2002). It means semiosis—the process of the semiotic analysis (Queiroz and El-Hani, 2006)—cannot be reduced without reference to relating meaning and interpretation of the context, event, and time. It can only be explained through how we understand the concept.

Semiosis is a dynamic social activity that requires curious investigators to observe and identify three distinctive forms of stratifications (Queiroz and El-Hani, 2006). These stratifications emerge in nature in the 'real' structure (Bhaskar and Hartwig, 2016). The 'actual' structure refers to what happens when these powers and liabilities are activated and change through each event, and the 'empirical' form emerges from experiences that influence behavior (Fairclough, Jessop and Sayer, 2002). This epistemological stance is “Critical Realism”.

3.2 Research Method

A way to prove the constructed model and its validity are by reviewing past research studies. A Systematic Literature Review is an informative approach, using the Academic Research Database for the reviewing of research papers within the area of "Semiotic Analysis" and "Marketing Semiotics," plus some manual downloads on "Visual Advertisement" and "Semiotics." The EPSCO Database is used with predefined conditions: the article must be peer-reviewed, printed in English, and have publication dates between 2000 and 2021.

Qualitative analysis is applied to extract data from the reviewed articles, and thematic analysis is used to classify research directions. Themes follow the key phasing milestone of the constructed model (see table 1.)

4. Systematic Literature Review Along the Path of SIAB Framework

The total number of journals found in the database was 829, but the total downloadable was 124. After screening for relevancy, the number came down to 83, and after deducting the duplications, the final to explore came down to 80 papers. This number is the number of journals to analyze.

Table 2: Research Journal Related Keywords

Authors Supplied Keywords	Frequency
advertising	26
semiotics	19
marketing	17
psychology	16
metaphor	8
consumer behavior	6
consumer attitude	6
social semiotics	4
marketing strategy	4
cognition	4
consumer attitude research	3
advertising campaign	3
olfactory perception	3
advertising and psychology	2
figure of speech	2

The top 5 most common analytic areas in table 2 are advertising, semiotics, marketing, psychology, metaphor, and consumer behavior from the author-supplied keywords. This evidence confirms that most research clusters around

people's response when seeing the advertising sign and responding to the hidden message.

This notion confirms that most research on marketing semiotics focuses on the impact of customer behaviors for marketing purposes or attitude impact and marketing strategy. However, when conducting the bibliometric analysis based on the relationships of authors and co-authors, we found that all research was done irrelevantly. As shown in figure 3, the bibliometric network graph confirms the incoordination of research directions.

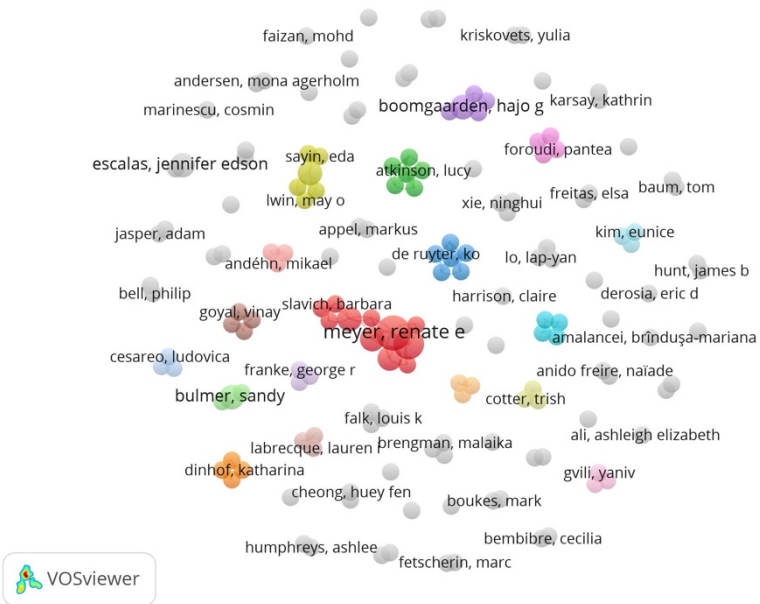


Figure 3: Bibliometric Analysis of Research Journal on Semiotic Analysis by Authors and Co-Authors

From the review of eighty journals, thirty-two used a quantitative research approach, seven used quantitative analysis, and three used mixed methods. In addition, five used an experimental approach, and one used a systematic literature review and bibliometric analysis approach. However, twenty-six authors wrote articles that were lightly related to semiotics.

All articles were then thematized according to the phasing milestones of the SIAB model. Figure 4 shows the results based on the checkpoints of the SIAB model. Thirty journals follow the path of the SIAB model, while nine explore only the feature of attitude alteration. Twenty-seven stops at testing the concept of semiotics theory. Four explore the sense of humans. The remaining four do not follow the SIAB track but lead into some other areas. Finally, six were irrelevant to the interest of this study.

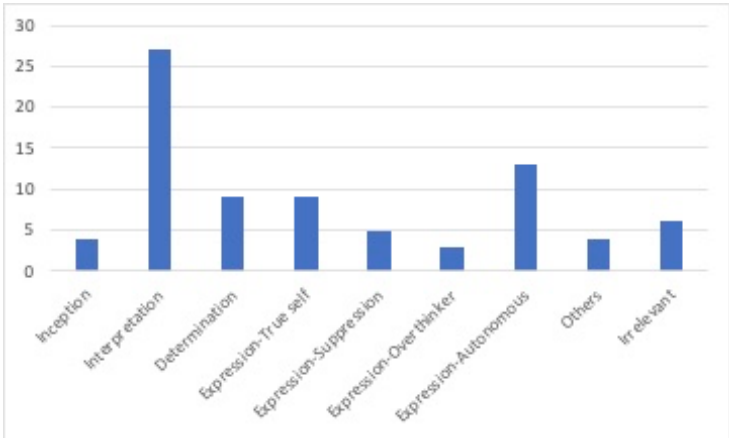


Figure 4: SIAB Milestone Phase Analytic

Most of the research, especially in marketing, focuses on interpretation. These articles emphasize the physical object of

the sign (signifier) and its interpretant (signified).

Of the journals that follow the SIAB model, Figure 5 categorizes research on the EMT continuum model. Forty-three percent (43%) relate to the development of Autonomous habits. Only ten percent (10%) relate to the Over-thinker type, and seventeen (17%) refer to the Suppression type. Thirty percent (30%) of them focus on the automatic response of humans when aroused by the sign.

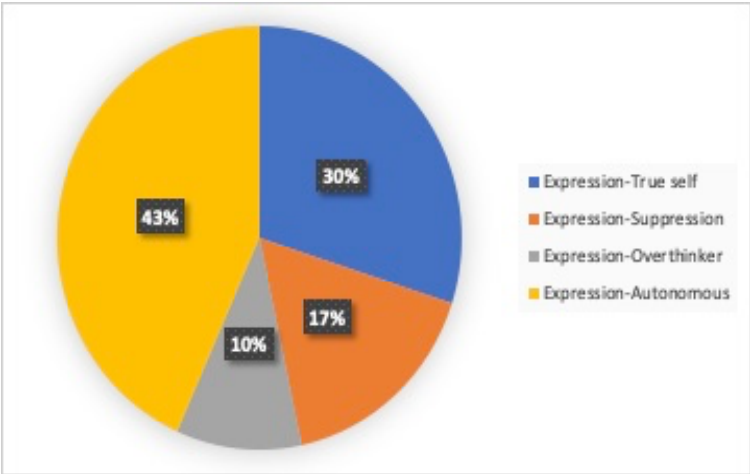


Figure 5: Responding Behaviors

5. Discussion, Limitations, Conclusion, and Future Research Directions

SIAB simplifies the cognitive process into a simple Input-Process-Output scheme. Semiotic is the input, ELM is the process, and Behavioral Expression is the output. This finding leads to many implications which are to discuss.

5.1 Discussion

The alignment of compositional theories matches the consumer step-wise behavioral change process of Awareness, Understanding, Believing, Feeling Good, Ownership, and Empowerment (Bennet et al., 2020) that finally leads to Action. Semiotics initiate awareness to draw a person’s attention. To understand and believe, information must go down the “central route,” which will impact the attitudes. Feel-good, ownership, and empowerment lie in the expression control matrix before a person can decide how to act.

In answering RQ, the SIAB framework fits with the ELM continuum theory, altering attitude change and resulting in behavioral change as reflected in the dyadic attitude expression matrix. Thus, the SIAB model is fit to answer the phenomenon of how a sign is observed, and arousal information triggers the attitude change and results in the expression of behavior.

“Cognitive,” in the crossed-knowledge domains, can be referred to as “the study of thought, learning, and mental organization, which draws on aspects of psychology, linguistics, philosophy, and computer modeling” (Cognitive Learning Science, 2022). When combined with “Semiotics,” “Cognitive Semiotics” becomes the theory that studies a phenomenology of “anything” that presents to the mind and effectively acts to the world (Paolucci, 2015). Bringing meaning to the world represents actions through behaviors, habits, and sense-making, which is the foundation of the epistemological approach to knowledge organization in many branches of the theory (Thellefsen and Thellefsen, 2004). Thus, it is not a surprise because semiotics can be a theoretical study that represents a phenomenon in many research disciplines.

The construction of organizational knowledge requires the process of knowledge transfer at the individual level (Chai-Arayalert and Nakata, 2013). The individual knowledge becomes the organizational knowledge with the advent of organizational processes and routines (Lewin, Massini and Peeters, 2011; Senivongse, Mariano and Bennet, 2014).

Knowledge transfer inevitably involves the “sign” system on the artifact that represents knowledge. Hence, SIAB is seen as the fundamental foundation of organizational knowledge construction.

5.2 Limitations

The initial focus of this study is on the semiotic representation and interpretation based on Marketing. However, when exploring deeper into the context of the process of interpreting semiotic information in the cognitive system, regarding the consciousness of feeling, image, conception, or other representations that phenomenologically comes to the mind, semiotics is more than a matter of marketing issues. It delves into the reflection on signs, meaning, and the world through action and sense-making (Paolucci, 2015). According to Eco (1979), the study of semiotics can be bounded by the three boundary thresholds—the political, the natural, and the epistemological. The political threshold is about the theoretical limits that each discipline may have its point of concern, raising theories or descriptions around its problem, and conducting an empirical study based on the relevant phenomena. Semiotics in marketing is no exception.

5.3 Future Research Directions

One possibility for future research needs a change in the decision expression matrix. A new focus area can be on problem-solving in different situations. This prospective study requires the combination of semiotic theory and the change of behavioral expression matrix to the Snowden's (2000) Cynefin model of problem-solving, where problems are recognized as simple, complicated, complex, and havoc systems. In a simple system, the responsiveness when recognizing the sign can be in a reflexive mode. That is, it can be instantaneous from the subconscious mind. In the complex system, the response requires syntactic structure, semantic understanding, and even pragmatic representation for successful transfer. However, in Complex systems, the transfer occurs in unconditionally unpredictable situations. The response from the recipient varies depending on the result as the input from the source of the transfer knowledge. Human is a complex system. Studies in how individual knowledge is constructed along the SIAB process and transferred can be explored.

The study of semiotics and sense-making is another challenge. Sense-making is conceived as a form of cognition, from the basic to the complex ones (Paolucci, 2015). Sense-making is tied to the non-representational meaning and habits. Sense-making relates to the mind and is connected to problem-solving capability when combined with cognitive skills. The area of SIAB and sense-making is worth exploring in more detail.

Another potential relates to the lying theory, which is regarded as one of the immense disciplines in semiotic processing in the cognitive space (Paolucci, 2015). When a person is supplied with biased information, unpleasant behavior may manifest. Changing behavior by reversely providing unbiased information is called the “Cognitive Dissonance” (Festinger, 1962). It is not easy to reduce dissonance or change the behavior. The process of dissonance is not in the scope of this study.

Another possibility is to interpret the semiotic in an artifact under the type of knowledge aspect. An Artifact is an object which is made up of two distinctive parts; ostensive (structure) and performative (interpretant) (Lewin, Massini, and Peeters, 2011; Mariano and Al-Arrayed, 2017). The ostensive part is the codification of explicit knowledge, while the performative element requires tacit knowledge to understand its underlying meaning (Senivongse and Bennet, 2019). An artifact can be used as a knowledge transfer aid in communication across syntactic, semantic, and pragmatic boundaries (Corsaro, 2018; Senivongse et al., 2020). Semiotic understanding of signs and theory provides a better experience of knowledge representation in the knowledge organization (Friedman and Thellefsen, 2011). Research on how artifacts withhold the knowledge of events and time with the semiotic concept benefits how knowledge is constructed, embedded, transferred, and reconstructed.

5.4 Conclusion

This study has empirically shown that the SIAB model clearly explains how the semiotic process works in the cognitive domain. Specifically, it shows how attitudes are altered through the EMT continuum model and how behaviors and habits are formed with the behavioral determination and control matrix. Cognitive semiotics is the knowledge organization method for many disciplines. For the idea that starts from a “sign,” with representation to the mind, and turns into actions and the formation of habits and behaviors, this becomes knowledge and provides knowledge organization in the form of structure (syntax), understanding (semantics), and doing/performing (pragmatics). However, based on semiotics, the interpretation and reconstruction of the knowledge is an interdisciplinary and individual capability.

“Attitude” comes mainly from the unconscious and is highly reflective of previous preconceptions and biases, often developed as sub-personalities. Caprara and Cervone (2000) defined a psychological complex system as a unity and continuity in terms of past, present, and future, both as perceived by the individual and as the individual is perceived by others. Core to this definition is the term “psychological complex system,” recognizing the personality as a complex system of structures and processes that emerge from multiple subsystems, specifically involving interdependencies between the person and the environment. Of course, since the human is a complex adaptive system (CAS), we recognize that the development of neurological structures is dependent on both genetic programming and personal experience (Kolb, Gibb and Robinson, 1988). As part of that structure, sub-personalities are “patterns of feelings, thoughts, behaviors, perceptions, postures, and ways of moving which tend to coalesce in response to various recurring situations in life” (Brown, 2013)., “A semi-permanent and semi-autonomous region of the personality capable of acting as a person” (Rowan, 2006, p. 8). In other words, there are (instant) automatic responses that have been programmed into our unconscious through repeated experiential engagements. These “responses” are triggered by unconscious patterns developed over time. On the marketing aspect, the “purchase” may not be a result of “persuasion” as much as an internal trigger based on past experiences. Semiotics is such a rich field of study.

References

- Bandura, A., Adam, N. E. and Beyer, J. (1977) ‘Cognitive Process mediating Behavioral Change’, *Journal of Personality of Social Psychology*, 35(3), pp. 125–139.
- Bennet, A. et al. (2020) *The Profundity and Bifurcation of Change Part I: Laying the Groundwork*, Moutain Quest Institute. MQI Press.
- Bennet, A. and Bennet, D. (2013) *Decision-Making in The New Reality Complexity, Knowledge, and Knowing*, MQI Press. Frost, WA: MQI Press.
- Bennet, D., Bennet, A. and Turner, R. (2015) *Expanding the self: The intelligent complex adaptive learning system, A New Theory of Adult Learning*. Frost, WV: MQI Press.
- Bhaskar, R. and Hartwig, M. (2016) *Enlightened common sense: The philosophy of critical realism*. Routledge.
- Bradley, S. (2016) ‘Icon, Index, and Symbol—Three Categories of Signs’, *Vanseo Design*, 5(April 5, 2016).
- Brown, L. J. (2013) *Intersubjective Processes and the Unconscious: An Integration of Freudian, Kleinian, and Bionian Perspectives*, *The Psychoanalytic Quarterly*.
- Cacioppo, J. T. et al. (1994) ‘Attitude change’, *Encyclopedia of Human Behavior*. Academic Press San Diego, CA, 1(36), pp. 261–270.
- Caprara, G. V. and Cervone, D. (2000) *Personality: Determinants, dynamics, and potentials*. Cambridge University Press.
- Chai-Arayalert, S. and Nakata, K. (2013) ‘Semiotic approach to a practice-oriented knowledge transfer’, *ICISO 2013 - Proceedings of the 14th International Conference on Informatics and Semiotics in Organisations, IFIP WG8.1 Working Conference*, pp. 56–61.
- Chandler, D. (2017) *Semiotics: the basics*. 3rd edn, *Angewandte Chemie International Edition*, 6(11), 951–952. 3rd edn. Routledge.
- Cherubino, P. et al. (2019) ‘Consumer behaviour through the eyes of neurophysiological measures: State-of-the-art and future trends’, *Computational Intelligence and Neuroscience*, 2019.
- *Cognitive Learning Science* (2022) *Cognitive Science for Better Learning*, Cedar Interactive.
- Corsaro, D. (2018) ‘Crossing the boundary between physical and digital: the role of boundary objects’, *IMP Journal*, 12(2), pp. 216–236.
- Eagly, A. H. and Chaiken, S. (1993) *The psychology of attitudes*. Harcourt brace Jovanovich college publishers.
- Eco, U. (1979) *A Theory of Semiotics*. First Edit, *International Philosophical Quarterly*. First Edit. Indiana University Press.
- Fairclough, N., Jessop, B. and Sayer, A. (2002) ‘Critical Realism and Semiosis’, *Alethia*. Taylor & Francis, 5(1), pp. 2–10.
- Festinger, L. (1962) ‘Cognitive dissonance’, *Scientific America*, 207(4), pp. 93–106.
- Forceville, C. (2017) ‘Visual and Multimodal Metaphor in Advertising: Cultural Perspectives’, *Styles of Communication*, 9(No 2), pp. 26–41.
- Friedman, A. and Thellefsen, M. (2011) ‘Concept theory and semiotics in knowledge organization’, *Journal of Documentation*, 67(4), pp. 644–674.

- He, J. and Shao, B. (2018) 'Examining the dynamic effects of social network advertising: A semiotic perspective', *Telematics and Informatics*, 35(2), pp. 504–516.
- Keeler, M. and Kloesel, C. (1997) 'Communication, Semiotic Continuity, and the Margins of the Peircean Text by', *Margins of the Text*, David Gree, pp. 1–53.
- Kolb, B., Gibb, R. and Robinson, T. E. (1988) 'Brain plasticity and behavior', *Annual review of psychology*, 49(1), pp. 43–64.
- Kuzu, T. S. (2016) 'The Impact of a Semiotic Analysis Theory-Based Writing Activity on Students' Writing Skills', *Eurasian Journal of Educational Research*, 16(63), pp. 34–54.
- Lewin, A. Y., Massini, S. and Peeters, C. (2011) 'Microfoundations of Internal and External Absorptive Capacity Routines', *Organization Science*, 22(1), pp. 81–98.
- Louhema, K. et al. (2019) 'Translating from monosemiotic to polysemiotic narratives: A study of Finnish speech and gestures', *Sign Systems Studies*, 47(3–4), pp. 480–525.
- Lwin, M. O. et al. (2016) 'Odor Semantics and Visual Cues: What We Smell Impacts Where We Look, What We Remember, and What We Want to Buy', *Journal of Behavioral Decision Making*, 29(2–3), pp. 336–350.
- Mariano, S. and Al-Ararrayed, S. (2017) 'Combinations of absorptive capacity metaroutines: The role of organizational disruptions and time constraints', *European Management Journal*. Elsevier Ltd, 36(2), pp. 171–182.
- Mason, L. (2001) 'The process of change through persuasion: A commentary', *International Journal of Educational Research*, 35(7–8), pp. 715–729.
- Moriarty, S. E. (2002) 'The Symbiotics of Semiotics and Visual Communication', *Journal of Visual Literacy*, 22(1), pp. 19–28.
- Paolucci, C. (2015) *Cognitive semiotics, Integrating Signs, Minds, Meaning and Cognition*, *International Handbook of Semiotics*. Springer.
- Petty, R. E. et al. (2003) *Persuasion and Attitude Change*, *Handbook of psychology: Personality and social psychology*.
- Petty, R. E. and Brinol, P. (2010) 'Attitude structure and change: Implications for implicit measures.', *Handbook of implicit social cognition: Measurement, theory, and applications*. The Guilford Press, pp. 335–352.
- Petty, R. E., Cacioppo, J. T. and Schumann, D. (1983) 'Central and Peripheral Routes to Advertising Effectiveness-The Moderating Role of Involvement', *The Journal of Consumer Research*, 10, pp. 135–146.
- Petty, R. E. and Wegener, D. T. (1998) 'Attitude change: Multiple roles for persuasion variables', *Annual review of psychology*, 48(1), pp. 1–78.
- Queiroz, J. and El-Hani, C. N. (2006) 'Semiosis as an Emergent Process', *Transaction of the Charles S. Peirce Society*, 42(1), pp. 78–116.
- Richter, D. H. (1998) 'Nature of the Linguistic Sign', *The Critical Tradition: Classic Texts and Contemporary Trends*, Ed. Boston, pp. 832–835.
- Rokeach, M. (1966) 'Attitude Change and Behavioral Change.', *Public Opinion Quarterly*. Oxford University Press, 30(4, winter), pp. 529–550.
- Rosenberg, M. J. et al. (1960) 'Attitude organization and change: An analysis of consistency among attitude components', *Yales studies in attitude and communication*. Yale Univer. Press, III.
- Rowan, J. (2006) 'Subpersonalities and the transpersonal', *Self & Society*. Taylor & Francis, 33(6).
- Senivongse, C. et al. (2020) 'Absorptive capacity efficacy in SMEs : evidence from multiple case studies in the information technology industry', *Knowledge Management Research & Practice*. Taylor & Francis, 00(00), pp. 1–14.
- Senivongse, C. and Bennet, A. (2019) 'Clarifying absorptive capacity and dynamic capabilities dilemma in high dynamic market IT SMEs', *VINE Journal of Information and Knowledge Management Systems*, 49(3), pp. 372–396.
- Senivongse, C., Mariano, S. and Bennet, A. (2014) 'Internal processes of absorptive capacity: A systematic literature review and future research directions', in *ICICKM 2015*. Sonning Common, England: ACPI Publishing, Inc., pp. 1–12.
- Serenko, A. and Turel, O. (2019) 'A dual-attitude model of system use: The effect of explicit and implicit attitudes', *Information and Management*. Elsevier, 56(5), pp. 657–668.
- Snowden, D. (2000) 'Cynefin, a sense of time and place: an ecological approach to sense making and learning

in formal and informal communities'. Citeseer.

- Thellefsen, T. L. and Thellefsen, M. M. (2004) 'Pragmatic semiotics and knowledge organization', *Knowledge Organization*, 31(3), pp. 177–187.
- Wells, R. S. (1947) 'De Saussure's System of Linguistics', *WORD*, 3(1–2), pp. 1–31.
- Wilson, T. D., Lindsey, S. and Schooler, T. Y. (2000) 'A Model of Dual Attitudes', *Psychological review*, 107(1), pp. 101–126.
- Yakin, H. S. M. and Totu, A. (2014) 'The Semiotic Perspectives of Peirce and Saussure: A Brief Comparative Study', *Procedia - Social and Behavioral Sciences*. Elsevier B.V., 155(October), pp. 4–8.
- Zlatev, J. (2019) 'Mimesis theory, learning, and polysemiotic communication', in *Encyclopedia of educational philosophy and theory*. Springer.