Pakistan Journal of Applied Psychology (PJAP), 2022, Vol. 2, No. 2, 125-136
DOI: https://doi.org/10.52461/pjap.v2i2.1277 **Review Article**

Eidetic Image Psychology: A Review of Literature

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Abstract

The study critically analyzed the evolution of eidetic image psychology, from its philosophical background to the scientific neuropsychological evidence. Literature reveals that imagery and its significance have been demonstrated by a number of philosophers. From Aristotle to Ludwig Wittgenstein, almost all the leading philosophers acknowledged the significance of imagery in one way or other (*i.e.,* Watson, 1913; Aristotle, 1930; Allport, 1924 etc.). Psychologists studied imagery under the term of *'Mental Imagery'* and identified its role in learning and memory, and defined it as a process (not as merely a picture) (*i.e.,* Finke, 1989). Mental imagery has been used for various therapeutic purposes; several approaches to mental imagery were critically analyzed and recommendations were offered for future inquiry. The strong relation between affective-somatic processes and imagery was emphasized. Reviewing its vividness, sensory and somatic components, many researchers began to study imagery under the name of *'Eidetic Imagery'*, in the realm of psychology. Ahsen (1965, 1968, 1977a, 1984) compiled and extended their work more scientifically and established eidetic imagery as an independent school of psychology with a well-formulated set of principles about the function and structure of the image and the state of consciousness. Ahsen's theory of eidetic imagery and its ISM model has been proved by the modern literature, in neuropsychological perspective (*i.e.,* Gains et al., 2004; Slotnick et al., 2005; Patel et al., 2007; Ganis & Schendan, 2008; Holmes & Mathews, 2010; Ji et al., 2017).

Keywords: *eidetic image psychology, mental imagery, eidetic psychotherapy, ISM model, neuropsychology*

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Received:
22-10-2022
Revision Received:
16-12-2022
Accepted:
20-12-2022

Introduction

This paper intends to critically review the evolution of eidetic image psychology, from its philosophical roots to neuropsychological evidence; how the research on imagery formed over time and how it was established as an independent school of psychology. The studies that have been analyzed in this paper are pieces of evidence and findings of research data.

I. Philosophical Roots of Imagery

Eidetic image psychology has strong historical roots. The significance of imagery had been highlighted by a number of philosophers. From Aristotle to Ludwig Wittgenstein,

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almost all the leading philosophers acknowledged imagery in one way or other. However, until the second half of the twentieth century, the phenomenon of imagery could not be empirically investigated thoroughly. Firstly, Watson (1913) proposed that constructs like imagery can be studied empirically. He published his Behaviourist manifesto in which he rejected the concept that imagery is too subjective to study (cf. Moran, 2012). This way the rise of behaviorism caused disinclination among the researchers to study an unobservable subject like imagery. Furthermore, for studying a subjective phenomenon like imagery, there was also a methodological constraint.

For Aristotle (1930), imagery is a perceptual experience of an object which persists even after the elimination of that object. He defined Image or imagination as a faculty meant to store a set of quasi-sensory experiences (as cited in Hamlyn, 2002). His term *Phantasma/ Phantasia* has been taken as the equivalent to what we now know as a mental image. This *phantasma,* in his theory, plays a central role in *memory, recalling* past experiences and *thoughts* because the soul (mind) cannot think without it (as cited in Roeckelein, 2004).

Thomas Hobbes (1651) predicts "imagination being only of those things which have been previously perceived by the senses, either by parts at several times, or all at once". The conception of the idea by Descartes is very close to the notion of pictorial and quasi-perceptual which is formed in the imagination (as cited in Thomas, 2013).

Sir Francis Galton (1883) proposed mental imagery as a key player in the creative endeavors of discoverers. He was the first who described and investigated the phenomenon of imagery from an empirical psychological perspective. According to his words, the "best workmen are those who visualize the whole of what they propose to do". In his view, the ability to visualize can be increased by education and practice (as cited in VanTassel-Baska, (2013).

Allport (1924) indicated that eidetic imagery is different from the afterimage in all the characteristics excepting both are projected into the perceptual sphere. Nevertheless, Jaensch was sure that eidetic imagery is jointly generated by perceptual and cognitive domains. His theory of cognitive-perceptual explains the eidetic imagery as an image that may be provoked and retained by scanning of the represented stimulus object and it can persist after the exclusion of the stimulus for a longer time, greater than 40 seconds (as cited in Giaray et al., 1985).

Haber and Haber (1964) demonstrated eidetic imagery as a visual image that persists after stimulation, having accurate details, positively colored, and capable of being repeated. Similarly, Hinsie and Campbell (1970) described eidetic imagery as images having characteristics of objects seen before, which can be seen by voluntary effort. However, they differentiated the memory image and afterimage from eidetic imagery (as cited in Roeckelein, 2004).

Philosophers overall deemed imagery as particular representations similar to what is formed throughout the perceptive processes. They rejected the concept that imagery is too subjective to study and acknowledged its central role in memory, recalling past experiences and thoughts. Some proposed that imagery is the ability to visualize those things which have been previously perceived by the sense, and it can be increased by education and practice. Philosophers also identified the cognitive domains of imagery and differentiated eidetic imagery from memory image and afterimage. The philosophical debate and assertions about imagery, its existence, and operation, as delineated above paved its way into the realm of psychology. Psychologists not only extended the discussion but recognized its numerous other unexplored functions through scientific procedures.

II. Imagery in Psychology

Psychologists studied imagery under the name of *'Mental Imagery'*. Experts identified its role in learning and memory and defined it as a process (not as merely a picture).

Paivio (1969) was among the first who described mental imagery as an associative mediator or memory code that gives spatially similar information which can mediate overt responses without necessarily being consciously experienced as a visual image (as cited in Morris et al., 2005). Finke (1989) has defined imagery as "the mental invention or recreation of a subjective experience that is somewhat parallel to the experience of actually perceiving an event or an object, even in the absence of direct sensory stimulation." Almost every school of psychology acknowledged the significance of mental imagery and its clinical utility. Imagery has been investigated for various therapeutic purposes; several approaches of mental imagery were critically analyzed and recommendations were offered for future inquiry. The strong relation between affective-somatic processes and imagery was emphasized.

Psychoanalysis

Freud discovered that imagery symbolizes emotions and instincts. The functions of imagery related to drives were believed so significant they dominated other uses of mental imagery in cognition. Ego-related uses of imagery were not evaluated until ego theorists studied cognition independent of abnormal psychology. It was then explored by object relation theorists and researchers (Kernberg, 1995; Ogden, 2002) that how ego controls instinctual conflicts by using imagery, also its uses in rational problem-solving. It was determined by mental models' theory, when internal models are contradicted by an individual's present external reality it causes psychopathology. This happens because rigid beliefs deter the assimilation of new information and painful emotional associations prevent evaluating the experience. Interventions were presented to help the patient in recognizing their inner models and to explore the new ones, which causes personality changes. The therapeutic process incorporates imagery rehearsal of new approaches after evaluating the old patterns. As the inner models are not linear so the imagery is most effective in dealing with them directly. Several psychoanalytic therapists used imagery in treating patients and reviewed it as a defense mechanism and to gain insight into patients. They concluded that imagery is more realistic in terms of emotions as compared to verbal interventions. Despite its efficient role in therapy, the analytic practice did not integrate the methods of imagery, the main reason and disadvantage was they altered the role of the analyst (Waddell, 1982).

Classical Conditioning

Behaviorists offered various imagery strategies for the treatment of phobias and posttraumatic reactions, though a bit of attention was given to the fundamental hypothesis that imagery of the relevant stimulus can preserve conditioned behavior. In human classical conditioning, mental images have been used as a substitute for physical stimulus. Empirical evidence has been reviewed by the theorists to explain the role of mental images of unconditioned stimulus (US) and conditioned stimulus (CS), during pre-exposure to the stimulus; the real extinction and pairing of US and CS occur when CS is shown alone. The research studies propose that the use of mental imagery in behavioral therapy can weaken the effects of classical conditioning and, more tentatively, in autonomic conditioning, images can substitute for the actual CS and US (Dadds et al., 1997).

Similarly, in systematic desensitization, which is the most effective and broadly used form of behavioral intervention, images are employed instead of real stimulus when latter is unattainable or when the therapist intends to have a better control over anxiety elicitation than real-life (in-vivo) exposure is permitted (Wolpe, 1958). Like some other psychologists, Greenwald (1970) also attempted to present theories of the image to describe the most behavioristic of all phenomena, *i.e.*, instrumental and classical conditioning.

Symbolic Modeling

It is a therapeutic approach in which symbols, metaphors, and modeling are used to bring the desired change. In this process, clean language is used by the therapist to facilitate

people in recognizing their symbolic and metaphoric mind-body perceptions to build a "model" of their experiences. Bandura (1971) highlighted the role of symbolic modeling, and it was further explored by Cautela (1972), who made its explicit use in the therapeutic setting. He constructed certain images which depict that a pattern of responses chat can generate an alternative to the distressing response. The client is directed to extensively repeat these altered images in the daytime. For instance, a boy who was highly disturbed by his desire of having sexual relationships with both female and male, was recommended to practice the following imagery:

"Close your eyes and see (imagine) that you are watching a movie in which a boy is having a girl in his one arm and a man in the other. He is going toward his bedroom with both. Just as he reaches the door, he pushes and kicks the man aside by saying, ' I don't want you; just get away from me!' Holding the girl into his arms, he then takes her into the bedroom, and kisses her affectionately, and seems very joyful."

In terms of the conditioning model, Cautela's this therapeutic imagery is a way of cognitively familiarizing the client with a positive alternate response.

Emotive Imagery

This technique is extensively used in behavior therapy as well as in cognitive behavior therapy e.g., Rational Emotive Behavioral Therapy (REBT). In behavior therapy, it aims to replace a pathologic response (i.e., fear, anxiety) with a healthy one through counter-conditioning. However, on a cognitive level, it works as systematic desensitization for both children and adults.

Lazarus and Abramowitz (1962) have demonstrated in a variation of desensitization, that emotive imagery can be employed on children for counterconditioning fears and anxiety, as children may not readily understand deep relaxation. In his therapy, he used emotive imagery by encouraging children to imagine stronger threatening situations into progressively more pleasurable fantasies. The positive feelings, as aroused by fantasy effectively competed against anxiety and threatening stimuli conditioned to feelings incompatible with fear. Similarly, Lipsky et al. (1980) indicated that rational-emotive imagery produced significantly healthier results for adult patients with depression and anxiety, than other techniques. They concluded that imagery can efficiently treat various psychopathologies.

Cognitive Restructuring

Several cognitive researchers demonstrated that images have unique usefulness in delivering a clear cognitive understanding to the patient about his perceptual errors (distortions) which, although conscious, maybe only be ambiguously sensed. Beck (1970) believed that by using a cognitive model, conditioning effects of repetitive fantasies could be described well. His research led him to propose that the repetition of image fantasies is complemented by cognitive restructuring: images, induced or spontaneous, can elucidate for the person his thought errors as well as give substantial data for the insight of a negative emotional response. He described that the subject of undirected fantasies seldom alters spontaneously into the path of reality, however this happens rarely. When a spontaneous change occurs, it indicates that a form of reality-testing is occurring. He cited numerous examples of his own patients, where he altered their pictorial ideation, and a certain change appeared in the quality or intensity of the affect. I.e., "when a depressed patient was seen the irrational aspects of his nihilistic thoughts, his depressive feelings disappeared." Likewise, "when a patient with health anxiety was persuaded that her pictorial image of having tumor is not reality-based, her anxiety cured."

Lazarus (1971) indicates various techniques of imagery where the psychotherapist intentionally and purposefully tries to modify the cognitive structure of the patient. 'Rational imagery' is the most relevant of these, based upon the maxim "As you think so shall you feel" (Ellis, 1962). Mainly, in this method, several situations are visualized to the patient, to

identify the cognitive distortions and then the patient is guided to respond rationally. By this rational imagery, cognitive distortions can be eradicated, and long-term changes are supposed to proceed.

Eye Movement Desensitization and Reprocessing (EMDR)

The EMDR therapy (Shapiro, 1999) requires patients to repetitively imagine a traumatic event, while simultaneously engaging in eye movements. This systematic correlation between the automaticity of the intrusive image, and the constant mental effort of visual tracking ultimately fosters a decline in emotional saliency and image vividness; thus, relieving patient distress. The mental effort associated with keeping eye movements taxes the visuospatial subsystem of working memory, and excessively uses attentional assets otherwise utilized in vivid imagining and emotional processing.

Smeets et al. (2012) expanded this finding by providing strong evidence that reductions in imagery vividness leads to those of emotionality. The participants were randomly assigned by the authors to eye stationary or eye movement conditions and had participants recall traumatic memories for 96 seconds. On a trial-by-trial basis, emotionality and imagery vividness ratings were investigated at regular intervals throughout the procedure. Results showed that both sets of ratings progressively reduced in the eye movement condition relative to the eye stationary condition but declines in vividness ratings always accompanied or led to declines in emotionality. Concerning EMDR, these data indicate that imagery is highly related to emotional processing, vividness in imagery leads to high emotionality.

All these successful attempts by psychologists to assess features and functions of mental imagery through use of scientific methods made it a scientifically measurable phenomenon. The evolution of scientific methods for mental imagery answered many questions about its functioning and use in psychotherapies.

III. Establishment of Eidetic Image Psychology

Almost all the researchers of Mental Imagery evaluated imagery in the cognitive and behavioral framework (*i.e.,* Kosslyn, 1996), however, reviewing its vividness and sensory components, many researchers began to study imagery under the name of *'Eidetic Imagery'* in the realm of psychology. For Richardson (1969) eidetic imagery is prolonged mental imagery that is vivid and persistent, commonly called photographic memory. It lasts longer than the afterimage and involves more complex and vivid details of the stimulus. Many other psychologists defined eidetic imagery and its functions in their own ways; Ahsen (1965, 1968) compiled and extended their work more scientifically and established eidetic imagery as an independent school of psychology.

Eidetic Image Psychology is a comprehensive and broad term, proposed by Ahsen. It is consisted of well-formulated theories and principles about the formation and function of the image and the nature of consciousness. According to Ahsen, eidetic imagery is a "normal subjective visual image" having pronounced clarity, which may or may not be related to the subjective experience of an actual situation. He proposed that eidetic imagery is not wholly related to cognitive psychology, yet cognition is one of the components of its triple code description. In an applied process sense, Eidetic Image Psychology proposes that image is fundamental to psychological resolution, personal development, new learning and insight; that in this form it is multi-levelled, multisensory, and empirical; and that it performs in consciousness as a visual Image, with Somatic response and a Meaning (ISM) all at once (Ahsen, 1965, 1968, 1977a, 1984).

Triple Code Model of Eidetic Imagery

Ahsen proposed that an eidetic image holds the sensory (Image, *seeing, touching, hearing, tasting, and smelling*), physiological (Somatic response, *feelings, and emotions*), and cognitive components (*interpretations, understanding, and beliefs*) of experiences. In his

theory, he proved that visual image (I) is accompanied by a certain somatic, physiological, and emotional response (S) and meaning or cognitive outcome (M), in this way he proposed the triple code model (ISM) of eidetic imagery (Ahsen, 1977b, 1987, 2005). This triple code model is named *'Structural Eidetics*'.

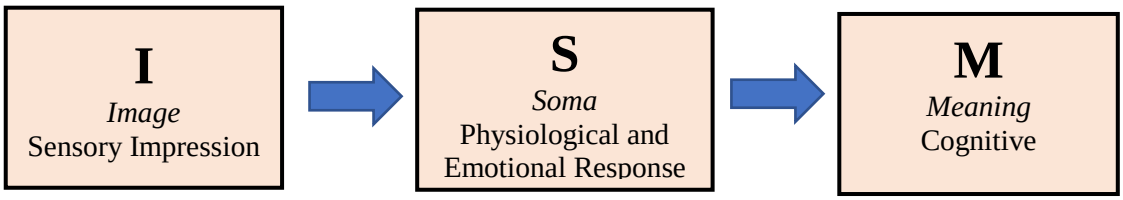
The ISM is not a description of three separate components but describes a unified representation of an experience. The subjective experiential details are stored in the ISM format and contribute to development and growth. In the ISM, the *somatic* response has been given preference over the *meaning* due to the strong connection between the image (senses) and the body. The meaning dimension is mostly dependent on the IS relationship (Hochman, 1995).

Ahsen recognized six operational variations of the ISM model, which are the phenomenological descriptions of a person's functioning ability (Hochman, 1995).

1. ISM: An individual sees an image, responds with a somatic response, and illuminates the meanings of the experience.
2. IMS: An individual sees an image clearly, but a dysfunctional thought complicates the visible reality, and the physiological response follows the misconception
3. SIM: The physically altered condition prevails, causing an individual to see images and interpret the meaning only according to the altered state
4. SMI: The physically altered condition causes a predisposition, which leads to accepting the thoughts and images of another individual and seeing things accordingly
5. MIS: An individual's thoughts force him to see, feel and act accordingly
6. MSI: An individual's thoughts force him to feel, act and see things accordingly

Figure 1

The ISM Model in People Who are Typically Developing (Syed, 2012)



The ISM shows distinctive tripartite which are always found to correlate with the memory of the actual event (Dolan, 1997). The substantial experiences of an individual are stored in the format of ISM which contains all the components preserved in consciousness. This recorded unit neither misses nor omits any information which is required for a therapeutic reason to revisit the experience. Ahsen (1968) attempted to explain the formation of symptoms of psychopathology through this triple code model. As he stated, "We consider that ISM is a repeatable entity which can be subjected to study through controls. This we have been able to demonstrate through our experiments in pure psychology. We believe that a symptom, like an experience, is also an ISM. A person may become traumatized by some experience - an ISM- and may try to suppress his relationship with it. A repressed ISM is, however, not repressed in the accepted dynamic sense but is pushed behind seriality of states."

The emphasis of Ahsen’s eidetic psychotherapy is to restore the disordered eidetic image in the sequence of ISM through self-regulatory process, within the conscious level. Eidetic psychotherapy is the deep healing that pays a great deal of attention to these variations and makes an effort to get the order back to the ISM format (Ahsen, 1977b; Hochman, 1995).

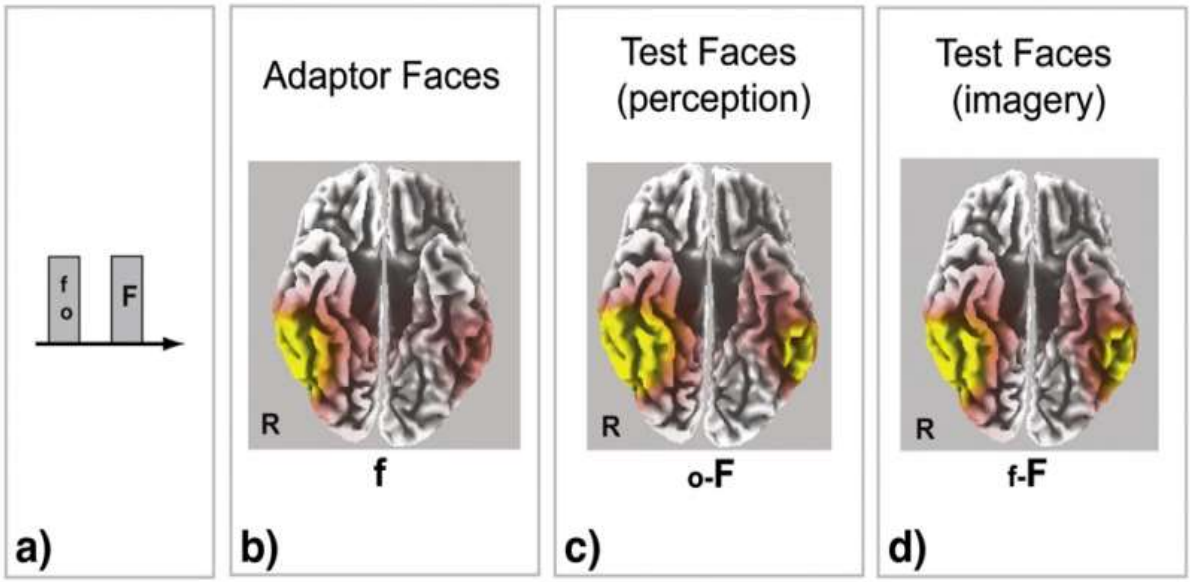
IV. Neuropsychological Evidence of Eidetic Imagery

Ahsen's work on imagery and its role in the formulation of mental disorders, inspired the researchers to investigate this phenomenon more scientifically to build strong evidence about its existence. Unlike previous work, the modern literature evaluated the functioning of mental imagery from a neuropsychological perspective to prove its authenticity. It was originated from two types of examinations; first a set of evidence generated from studies, which used modern neuroimaging methods of assessment, second evidence collected from the clinical data confirming the role of imagery in the formation of psychopathology and formulation of psychotherapy for mental disorders.

Studies (*i.e.*, Gains et al., 2004; Ganis & Schendan, 2008; Slotnick et al., 2005) proposed that neural representations of a visual entity are reactivated endogenously from long-term memory during visual mental imagery and retained in the working memory to be examined and transformed, processes at the centre of several common cognitive activities, e.g., spatial reasoning. The authors used neuroimaging procedures i.e., positron emission tomography (PET scans) and functional magnetic resonance imaging (fMRI) to show the relationship between visual mental imagery and brain activation in different regions. They discovered that there is a significant role of the visual cortex (V1 and V2) in both hemispheres during imagery, shows high activity levels. The outcomes of such neuroimaging studies supported the hypothesis that imagery is functionally same to perception, as similar neural machinery is involved in both. This is shown in the following figures.

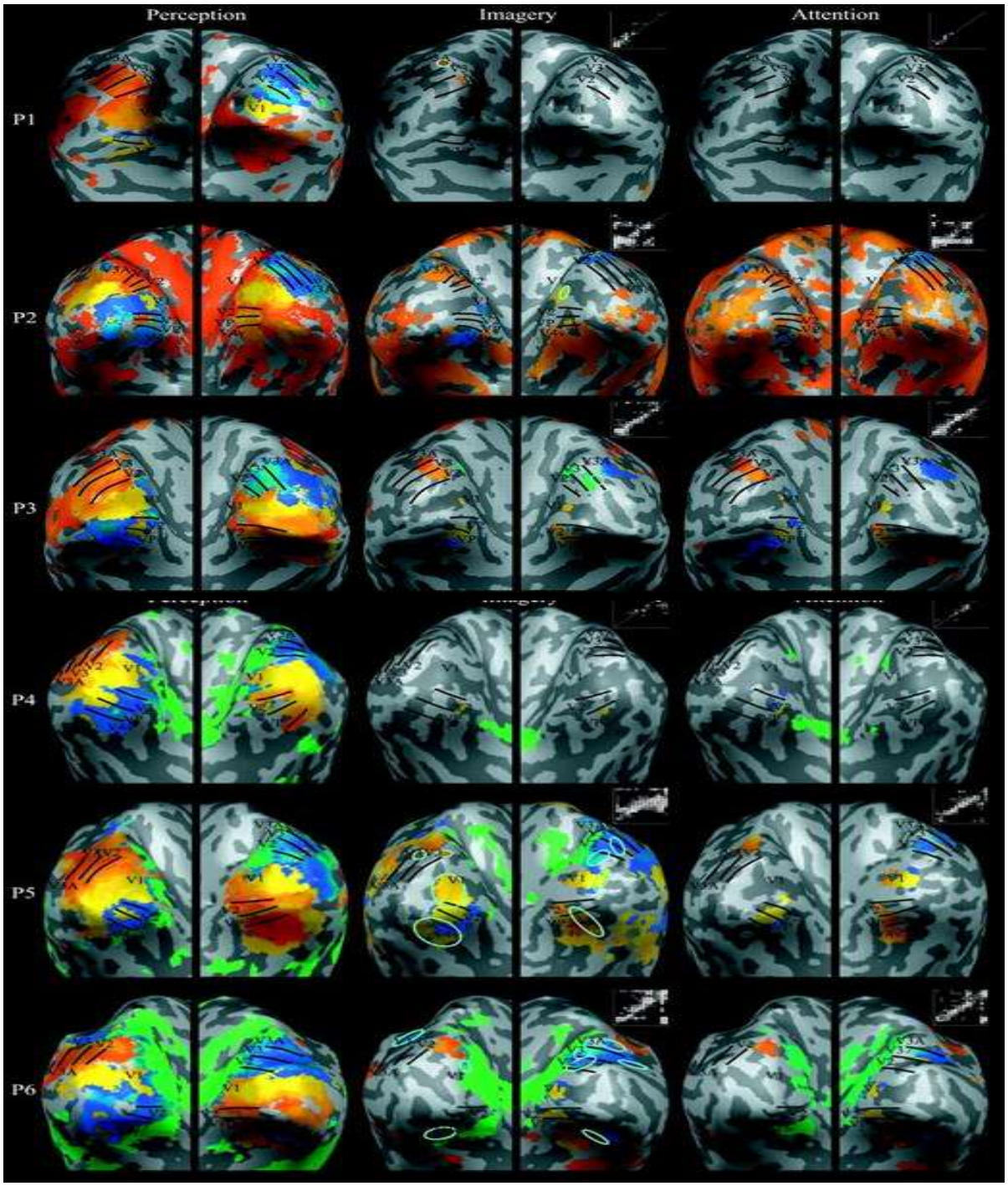
Figure 2

Comparative Effect of Visualized and Perceived Adaptors on the Early Cortical Processing of Faces



The above figure suggests that each depicted brain shows standardized cortical current density distributions. Yellow indicates the highest current density values. As for adaptor faces, neural generators are localized to the fusiform gyrus, extending into the lateral temporal cortex and the occipital cortex (mostly in the right hemisphere). Visual perception and visual mental imagery of faces recruit the same early perceptual processes as both engage similar neural populations in the visual system (Ganis & Schendan, 2008).

Figure 3
The Retinotopic Maps Associated with the Perception, Imagery, and Attention Conditions



The above figure 3 shows that for each of the six participants, retinotopic maps were projected onto inflated cortical regions of the right and left hemispheres. The borders among early visual areas were recognized from the perception maps (shown on the left) and transferred onto the imagery and attention maps (shown in the middle and on the right, respectively), which allowed the assessment of retinotopically organized activation during imagery and attention in striate and extrastriate cortex. Cyan ovals demarcate regions in the striate and extrastriate

cortex where imagery-related retinotopic activity was significantly greater than attention-related retinotopic activity (imagery > attention contrast) (Slotnick et al., 2005).

Figure 4

Neural Regions Associated with Imagery-Related Cognitive Conjunctions

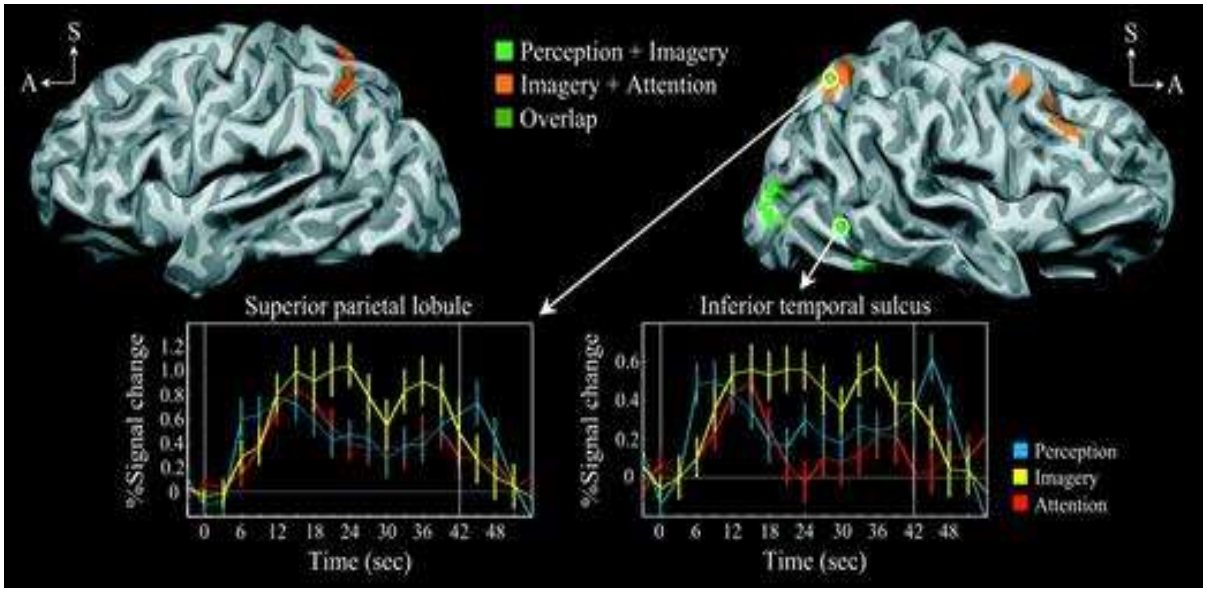


Figure 4 reveals similar perception and imagery effects in the human motion processing region MT+. Activity associated with the conjunction of perception + imagery is displayed in bright green. The conjunction of perception and imagery (perception + imagery) is connected with activity in the parietal lobe (BA7), temporal cortex (BA37) inclusive of middle temporal gyrus and inferior temporal sulcus, also extrastriate cortex (BA18, BA19) (Slotnick et al., 2005).

Kosslyn (1996) found that different brain regions are involved in the response to the type of imagery being visualized. It was further confirmed by other researchers as well that specific regions of the brain related to the perception of motion are involved in imagery response; middle temporal (MT) and medial superior temporal (MST) are seen active when participants visualized the movement patterns (Goebel et al. 1998). Kosslyn (2005) further explored the relationship of mental imagery with traumatic experiences. He found that images have the ability to impact broader bodily systems. He stated that "A traumatic event leads to emotionally charged perceptual details' being stored, which in turn, can generate mental images that arouse several same somatic reactions, as did the actual experience. The normal thinking patterns can be disrupted by these stress reactions, and over the long term can even harm the brain".

Holmes and Mathews (2010) investigated the connection of mental imagery with emotions and emotional disorders. They discovered that the emotional system can be influenced by imagery because of its powerful connection with perception, sensory signals, and memory. Furthermore, they discovered a new phenomenon that imagery indeed arouse higher emotional responses than the verbal thoughts, though the amount of emotional reaction depends on the image perspective adopted. They also established that imagery has a significant effect on emotions, beliefs, and behaviors, its role in maintaining emotional disorders, and its uses in therapeutic intervention.

Holmes and Hackman (2004) determined that intrusive mental images in the form of flashbacks are a hallmark of post-traumatic stress disorder (PTSD). The distressing imagery

is a more pervasive phenomenon that appears to be a strong link with autobiographical memory, and causes a wide range of psychological disorders including social phobia, agoraphobia, body dysmorphic disorder, depression, bipolar, and even psychosis. However, Ehlers et al. (2005) noted that imagery is not confined to flashbacks, rather visualizing the ‘‘hot spot’’ can be used to treat PTSD.

Patel et al. (2007) conducted a study on distressing intrusive memory and mental imagery among depressive patients. Total 39 adult patients (13 males and 26 females) with a diagnosis of major depressive disorder, were included in the study. Results demonstrated that out of 39 patients, 17 patients (44%) reported repetitive intrusive imagery; however, intrusive memories were more common than images. The strong emotions correlated with the intrusions were sadness and anger. The content of the images was all built upon original memories. Two images were of a person’s face disconnected from their body (i.e., a stalker’s face), while the other three were frozen images (i.e., slumped to one side, uncle dead in his chair). They predicted the success of a therapy that can address those images.

Ji et al. (2017) in their latest research found that the vividness of positive prospective imagery is significantly correlated with both current and future levels of optimism. The optimism level has a predictive value in coping with cardiovascular diseases and depression. They concluded that strategies to improve the vividness of positive prospective imagery can aid the growth of mental health interventions to enhance optimism. In another study, Morina et al. (2011) recognized the therapeutic role of positive imagery for major depression and anxiety disorders.

Conclusion

Eidetic image psychology is a great revolution in the field of psychology. It not only has a strong theoretical background but it has been admired by almost every school of psychology. It offers a more comprehensive explanation of the formation of psychopathology and the formulation of psychotherapy for mental disorders. Latest neuropsychological studies prove its existence and authenticity which can be clearly seen in various brain scans. Eidetic psychology is the only school that emphasizes on subjective experiences and the soma attached to it, thus it is distinct from other perspectives of psychology.

Conflict of interest: No conflict of interest.
Funding disclosure: No funding source.
Author’s Contribution: Syed Kumail Abdi (conceptualization and writeup), Akhter Ali Syed (supervision and review of literature), Sumaya Batool (formatting and proofreading)

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