**Visuospatial Function in Cognition**

Cognitive psychology is the systematic study of the brain as an information processor (Ritter et al., 2017). Cognitive psychologists try to develop paradigms and patterns of information processing that go through people’s minds (Groome, 2016). Some patterns include attention, memory, thinking, language, consciousness and perception. Some of the main cognitive domains include attention, memory, language, executive function and visuospatial function (Ritter et al., 2017). This paper will analyze visuospatial function in cognition, drawing experiments and showing how visual and light perception determine how things look.

Cognitive factors refer to mannerisms of a person that attributes to performance, understanding and learning rate to develop further or deteriorate (Groome, 2016). Cognitive factors that affect behaviour and learning include; interaction, productive use of technology, deep thinking, mental conflict resolution, asynchronous management, adaptation over time and task coordination between media (Ritter et al., 2017).

**Introduction**

Visuospatial ability refers to one’s ability to identify spatial and visual relationships among objects (Castro-Alonso et al., 2019). This is the ability to imagine items, make comprehensive shapes by locating the minor components, and understanding the differences and similarities between these objects.

This research was carried to determine if perception and high states such as feelings and action competence can precisely affect how things or situations appear, or the impact of perceptual judgments, memory, and response-bias that influences. The researchers wanted to verify that top-down effects cannot result to insight. Top-down effects include effects of morality on light perception and effects of action capabilities on spatial perception (Castro-Alonso et al., 2019). They tried to determine that top-down effects occur even when not supposed to. During the research, the researchers examined if visual perception determines how things look. Also, they wondered if the influence of judgment and one’s environment relationships affected how things appear.

The researchers hypothesized that spatial perception and light perception could occur at the same time. Spatial perception is the power to be mindful of one’s relationship with the environment. Light perception is the perceived reflection of a surface. The perceived reflection of light could either stretch out an environment or diminish it through one’s visual processing. They believed that light distortions do not necessarily reflect one’s relationship with the actual environment.

The hypothesis is justified in theory through the El Greco Fallacy (Xie, 2016). It is seen that during the Renaissance period, El Greco used to paint his subjects using odd stretched features. Art historians assumed that El Graco’s elongated painting was because he had severe astigmatism, which perceived his environment by vertically extending it. However, after careful reflection, they realized that just as El Graco’s world stretched, his canvas would have been longer; hence the disfiguration was cancelling each other out. The historians concluded that the paintings were beyond visual perceptions (Xie, 2016). The hypothesis is also justified through background research by various experiments.

The logic used in the research was of El Greco fallacy to assert top-down effects on perception by developing the fact that deformations and distortions should cancel each other out when the means of duplication is distorted just like when stimulus is being reproduced (Xie, 2016). The logic was used to prove that top-down effects cannot result to perception as they occur even when they should not. Experiments 1, 2 and 3 show the outcomes of competence on spatial insight while experiments 4 and 5 show outcomes of morality on light insight.

The research show the outcomes of ethics on light perception and the outcomes of competence on spatial insight. The trials asset that top-down effects influence perception but in different contexts. The research proves that perception and cognition can and cannot relate.

**Method**

The population used in the experiments was limited to the overall population of people around the world. One hundred and eighty people were during the experiment. Ninety-one people were present, while eighty-nine were enrolled online via Amazon Mechanical Turk. However, data from nine people were excluded as they failed to follow the instructions.

In the first experiment, the group of twenty members from Yale University first familiarized themselves with the testing room. They were then given an imagination task to imagine walking through the aperture, and their judgments with concerning the experiments were analyzed. Some subjects held the rod being investigated while others did not hold the rod at all. Afterwards, they estimated the width of the rods when standing at a distance for those who did not hold the rod, and those who held too gave their estimations until satisfied with their decision.

The second experiment was identical to the first, except that ten new members participated. In the third experiment, ten new subjects were introduced and held the rod. Whereas the people in Experiment 1 were not told the purpose of the rod, participants in this test were conveyed that the rod was being used to increase their balance. In the fourth experiment, eighty-nine participants were enrolled online through Amazon’s Mechanical Turk. The subjects had randomly been assigned to explain in writing experiences in their pasts that were ethical or unethical. They were distracted by a mathematical test. They were then told to assess the brightness of the room. The last experiment was identical to the fourth one except that ninety-one people participated. Grey patches of different scales were placed, and participants were directed to select the patch that best corresponds to the brightness of the room.

From the first to the third experiments, the researchers hypothesized that holding a bar on someone makes openings and space look narrower allegedly because openings are reduced hence making it less crossable. In the fourth and fifth experiments, the hypothesis’ was that there are outcomes of morality on light insight; for example, thinking dark thoughts makes one’s world look darker.

Dependent variables are the measures of the experiments’ outcomes, while the independent variable is what makes the research groups different from one another. The dependent variable from the first to third experiments was that some subjects held the rod while others did not. Also, some subjects familiarized themselves with the testing area while others did not. The dependent variables of the fourth and fifth experiments were in respect to the room’s lightness while being assessed.

Looking at the independent variables, in the first experiment, the group first familiarized themselves with the testing room. Some subjects held the rod being investigated while others did not hold the rod at all. In the second experiment, new subjects participated but did not first familiarize themselves with the testing room. The old subjects had the rod while the new ones did not. In the third experiment, new subjects participated, and they all held the rod. In the third experiment, subjects were recruited online, and perceived light and with respect to morality were tested. A numerical assessment was conducted. In the last experiment, grey-scale patches replaced the numerical evaluation.

**Discussion**

This paper has analyzed visuospatial function in cognition, drawing experiments and showing how visual and light perception determine how things look.

The results seen from the first to the third experiments showed that the rod appeared smaller to the subjects who held it than those who did not. The fourth and fifth experiment results’ showed that unethical deeds resulted to darkening of the environment while ethical deeds resulted in the lightness of the room. The results supported the researchers’ hypothesis.

The researchers hypothesized that spatial perception and light perception could occur at the same time. Spatial perception is the power to be mindful of one’s relationship with the environment. Light perception is the perceived reflection of a surface. The perceived reflection of light could either stretch out an environment or diminish it through one’s visual processing. They believed that light distortions do not necessarily reflect one’s relationship with the actual environment. This was proven through the experiments to be true.

The researchers concluded that there are outcomes of competence on spatial insight as seen from the first to third experiments. Also, they concluded that there are outcomes of morality on light insight, as observed through the fourth and fifth experiments. The general conclusion was that spatial and light perception could both occur at the same time. Light distortions can and cannot necessarily reflect one’s relationship with the actual environment, as seen in El Greco’s paintings.

The only limitation during the experiment was that many students did not follow the instructions. The researchers were sure their results would correspond to their conclusions; hence did not acknowledge whether the results would not conform to their hypothesis. In conclusion, the research proves that perception and cognition can and cannot relate. Also, spatial and light perception can both occur at the same time (Castro-Alonso et al., 2019).

References

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