The International Journal of Indian Psychology
ISSN 2348-5396 (e) | ISSN: 2349-3429 (p)
Volume 4, Issue 1, No. 84, DIP: 18.01.015/20160484
ISBN: 978-1-365-61732-4
http://www.ijip.in | October-December, 2016

Conversion of Field Data in Lab Experiments'

Dr. Usha Chelani[1]*, Geetika Goyal[2]

ABSTRACT

The objective of the present investigate is to examine the visual search method while controlling the factors like reaction time, intelligence, span of attention and experience and to discuss the differences between lab and field experiment and converting field based research to lab based research. It was hypothesized that suitable methodology will overcome the difficulty in transforming the visual search data among lab and field experiments. At first, 25 subjects were randomly selected and assessed on Psychological tests like Progressive Raven Matrix, Attention span and Ishihara colour test. Keeping the controlled situation in view, 15 students were ultimately selected for the experiments. Results revealed that Absolute Threshold of board recognition in lab is at 583.33 ft. whereas in field study it is at 612.5 ft., absolute threshold for green and brown colours is at 475 ft. for both lab and field situations. It disclosed inequitable support of current theory.

Keywords: *Visual Search, Intelligence, Experience, Attention, Field & Lab experiment.*

Visual search is the method of finding comprehensive target items within a surroundings based on particular visual features or semantic information (Dodd s and Flowers 2012). Identifying a green colour in the red shade engages many attentional and perceptual features. Identifying objects in both field and lab need cognitive factors which involve memory, attention and perception. Role of cognition is broadly considered in lab visual experiments. Studies on attention span and visual short term memory are reported by Yatis and Gonides 1996. In ancient times, psychological investigation has been carried out to know cognitive method for performing visual search task and the mechanism that consent for successful recognition of the target. Current technological advancement is also used for the development of screening method.

Controlling the other entire thing apart from experience, it is known that the skilled subjects use dissimilar approach, their expertise on search performance. When the organization involving experienced and inexperienced subjects is done, it is stated that qualified subjects show improved accurateness with skill. Dodd and Flowers 2012 recommended that expertise primary study in

[1] Faculty, TEPSE & HEPSN Centre, J. N. Vyas University, Jodhpur, Raj., India
[2] Research Scholar, Department of Psychology, J. N. Vyas University, Jodhpur, Raj., India
*Responding Author

visual search has shown cognitive mechanisms accountable for successful visual search as well as a diversity of issue that tend to hinder or progress performance. There are numerous difficulties in between the method of straight forward transformation as the control situations of the lab experiments are poles apart from the field search. For e.g. - shadow of the object, stimuli existing in the field, terrain and environment, experience and other characteristics of the subject. Certain lab and field study trials have been done collectively to calculate the factors that have impacted visual search. Other features like motivation, tension also affect the visual search performance. Some current work has examined the effects of motivated and uneasy surroundings on a variety of cognitive course (*Murty et al 2011*).

In the current research, an effort was made to link the gap among the result of the lab and field trial with the help of higher technological support. The aim of the current study is to examine the variation among lab and field experiment and how to overcome these problems to bridge the gap between lab and field conditions. Keeping in view the above observation, the factors like colour blindness, intelligence, eye sight, attention, reaction time, stress, experience were controlled. Impact of these variables will be determined how these factors will control the visual search presentation.

Objectives:

1. To study the visual search method while controlling the parameter like span of attention, intelligence, reaction time and experience.
2. To discuss the differences among lab and field experiment and translating field based investigate to lab based research.

Hypothesis:

The nature of stimuli will vary in lab as compared to field; the range is inadequate while in field unidentified and limited stimuli are perceived though, it was hypothesized that suitable methodology will overcome the difficulties in converting the visual search data between lab and field experiments.

METHODOLOGY

Tools:

Firstly 25 subjects were aimlessly selected and tested on Psychological tests like progressive ravens' matrix, reaction time, colour blindness and attention span.

Following tests were used in the current research –

Progressive Ravin Matrix- This matrix is a famous intelligence test, a non-verbal multiple choice test which measures the conceptual reasoning in every item. It includes 60 questions. In each item, the subject was asked to identify the missing piece that completes a pattern. Many patterns were shown in the form of a 4x4, 3x3, or 2x2 matrixes, giving the trial its name. After examination of figures, subject between 100 -110 IQ were chosen (Raven 1996).

Tachistoscope: To measure Span of Attention, Tachistoscope was used. On 10 cards 1-10 circles was drawn. For e.g.- on the card no. 1, 2 circle, card no. 2, 2 circles and on card 10^{th} card, 10 circles were drawn. Random presentation through Tachistoscope for 1/6 sec is made of these cards. The subject was instructed to ponder on the card and recognize the nos. of circles on each card. In this way all the cards were randomly presented thrice. The obtained data was analyzed and subjects who belong to average range were chosen.

Ishihara colour test- This test has certain types of plates. Plates 1-17 each contain a number; plates 18-24 contain one or two wiggly lines. To clear each test, subject had to recognize the right number, or rightly trace the wiggly lines. Subject was given following directions, "Sit roughly 75 cm from your computer screen, with each circle set at eye level, preferably have mild normal light and no glare on your monitor. Inner illumination and glare can change the colour of the pictures, try to spot the hidden figure or line within 5 seconds then click on the picture (left mouse button), upon left clicking, the answer will be shown along with an scrutiny explaining your condition if you got it wrong, continue to the next Ishihara test, complete them all to help measure your colour blindness severity. You can toggle back and forth between the original plate and the answer by clicking on the plate itself." Eye-sight of each subject was also examined.

Procedure:

After the study, on the basis of outcome take from the psychological tests, 15 subjects were selected, 5 of them were exposed to both field and lab experiments (experienced group) and other 5 were only exposed to field and rest 5 only to lab trial. All the subjects were told that, "In this field an item is hidden, you have to identify the thing which is not ordinary one for this field. There will be some distances on which you will be asked to trace that item and illustrate it. You will be blind-folded with support. Papers for jotting down your responses will be made available." They were also approved to move 20 ft. towards the right and left from the initial point. 11 distances were taken i.e. 900ft, 800 ft, 700 ft, 600 ft, 550 ft, 500 ft, 450 ft, 400 ft, 350 ft, 300 ft, and 250 ft. respectively. In field, trial began at 8.00 AM and a board with different pattern was hidden in the bushes against the daylight to keep away from the light on eyes of subjects. At each distance, 3 minutes were given to place the item. Their outcomes were obtained on an answer-sheet. An additional answer- sheet including the sketch of patterns was given to the subjects as soon as they observed patterns on the board. Each subject was supported independently. After finishing the trial, videography was made which was shown to the subjects in lab under controlled surroundings. The similar directions were known to them as well and their answers were noted during lab trial. In current research while converting the field data into lab investigation, the distance for videography is calculated 1/3 of field study.

Sample:

Originally 25 PG students were engaged for screening on colour blindness test for eye sight test, IQ test, span of attention and reaction time. Keeping the controlled circumstances in mind, 15 students were ultimately chosen for the trial. 5 out of these 15 subjects were used for field trial

and the same subjects were used in lab trial. An additional group of 5 students were taken for field experiment and left over 5 for lab trial.

Experienced Subjects i.e. same set of students used in both lab and field experiments (N=5)

Perceived response	**Distance (in feet)**	**Field 'X'**		**Lab 'Y"**	
Miscellaneous response	600	Board 2	Miscellaneous 3	Board 1	Miscellaneous 4
	550	Board 2		4	
	500	Board 5		4	
Patches with colours	450	colour green 3		colour green 4	
Correct identification of patches and colours	400	4		5	
Correct identification of patches and colours	350	5		5	
Correct identification of patches and colours	300	5		5	
Correct identification of patches and colours	250	5		5	
		31		**33**	

Experienced subjects both in lab and field experiments

In the present study, total 5 subjects were taken who were shown visual tasks in both lab and field. At 600 ft., in field 2 subjects were able to identify the board and 3 subjects gave various answers like bushes, trees, birds, polythene, box, men, etc. At the same distance 1 subject identified the board and 4 subjects gave various answers in lab. At 550 ft., 2 subjects recognized that board in field and 4 subjects in lab respectively. Similarly, at 500 ft., 5 and 4 subjects identified the board in field and lab respectively. At 450 ft., 3 subjects recognized green patches on the board and 4 subjects in field and lab respectively and similarly, at 400 ft., 4 and 5 subjects recognized the right green patches in field and lab respectively. From 350-250 ft., all the 5 subjects recognized the board along with the correct green and brown patches in both field and lab.

Inexperienced subjects i.e. different subjects used in both lab and field experiments (N=10)

Perceived response	**Distance**	**Lab 'Y"**	**Field 'X'**
No response	600	7	9
No response	550	8	10

Perceived response	Distance	Lab 'Y"	Field 'X'
No response	500	9	10
Recognised green and brown colour	450	10	10
Recognised green and brown colour	400	10	10
Recognised green and brown colour	350	10	10
Recognised green and brown colour	300	10	10
Recognised green and brown colour	250	10	10
		74	**79**

Inexperienced subjects separately in lab and field experiments

In the present research, total 10 subjects (5 in field and 5 in lab experiments respectively) were engaged who were not exposed to such visual tasks. At 600 ft distance, 7 subjects perceived the board in lab and 9 subjects recognized in field respectively. Similarly, at 550 ft., 8 subjects could identify the board in lab and 10 subjects in field respectively. At 500 ft distance, 9 and 10 subjects recognized the board in lab and field respectively. From 450-250 ft., all the 10 subjects identified the board along with the colours green and brown colours and their shapes.

Absolute Threshold of board recognition in lab is at 583.33 ft. whereas in field study it is at 612.5 ft., absolute threshold for green and brown colours is at 475 ft. for both lab and field situations.

DISCUSSION

Findings are to discuss the differences between lab and field study particularly in most research task in lab involves searching for only one goal per test. And the goal take place comparatively recurrently but in field investigation it may comprise unknown and infinite number of stimuli and searching of aim is not easy whereas in lab, exposed area is restricted one and the subject is certain that target is within the flaunt. Apart from this, in the lab visual search has been used widely to learn about cognition. For example, search studies have up to date theories of basic perception (e.g., Wolfe et al. 2005), the organization of visual short-term memory (e.g., *Alvarez and Cavanagh 2004*), and attentional capture (e.g., *Yantis and Jonides 1996*; *Franconeri et al.2005*), to name just a few. Further than using visual search as a influential tool for understanding cognitive processing, researchers have also decided on search as an experimental paradigm with the aim of accepting how investigations are carried out. Over the years, psychological investigation has made incredible development in understanding the processes accountable for performing visual search tasks and the mechanisms that allow for the successful identification of goal items.

CONCLUSION

The threshold for identifying board, its shape and colour in field trial comes to 612.5 and for lab trial it is 583.33. The threshold depends on the amount of attention given to a stimulus could vary for two causes- one is dimension and the other is onlooker which pays more concentration to one or another aspect of total stimuli input. The development in detecting of the objective is usually accompanied by a declining false alarm. The changes can be described on the basis of habituation of the neural and physiological responses of the repetition events of the targets. If any apparent alteration in the criterion is shown by the decrease in the recognition and false alarm may be due to the change in expectancy with diverse signals rates. Modification in expectancy as the possibility that an event will be a signal can guide to a change in reaction. Thus, both the expectancy and habituation may change the observing response. At first blush, it would be easy to say that searches from the lab and the field are not compatible given the vast differences between the manner in which search research is typically in the lab and how search is performed in the field. However, such a conclusion would be both pragmatically unfortunate and empirically premature. Four significant hurdles in this process were explained by Clark et.al. (2011) are no. of targets, target prevalence, anxiety and experience, motivation, out of these four, except anxiety and motivation all the difficulties were controlled and in place of anxiety, stress level is controlled in current research.

Acknowledgments

The author appreciates all those who participated in the study and helped to facilitate the research process.

Conflict of Interests

The author declared no conflict of interests.

REFERENCES

Alvarez, G.A. & Cavanagh, P. (2004). The capacity of visual short-term memory is set both by visual information load and by number of objects, Psychological science, 15, 106-111.

Clark, K., Cain, M.S. Adcock, R.A., & Mitroff, S.R. (2011). Interactions between reward, feedback, and timing structures on dual-target search performance, Poster presented at the annual meeting of the Vision Sciences Society, Naples, FL.

Franconeri, S.L., Hollingworth, A., & Simons, D.J. (2005). Do new objects capture attention? Psychological science, 16(4), 275-281.

M.D. Dodd, J.H. Flowers (2012). The Influence of Attention, Learning, and Motivation on Visual Search, Nebraska symposium on motivation.

Murty, V.P., LaBar, K.S., Hamilton, D.A, Adcock, R.A. (2011). Is all motivation good for learning: Dissociable influences of approach and avoidance motivation in declarative memory, Learning and memory, 18, 712-717.

Raven, J. C. (1996). Standard Progressive Matrices, New Delhi, Manasayam Delhi Press.

Wolfe, J.M. Horowitz, T.S., & Kenner, N.M. (2005). Rare items often missed in visual searches. Nature, 435, 439-440.

Yantis, S., & Jonides, J. (1996). Attentional capture by abrupt onsets: new perceptual objects or visual masking. Journal of experimental psychology: human perception and performance, 22(6), 1505-1513.