

INSTINCT AND ITS RELATIONSHIP TO THE HUMAN BRAIN / MEMORY UNDER DIFFERENT SITUATIONS

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INTRODUCTION

We define Instinct as the instant accurate and reliable action (maybe with a couple of trials or iterations) in response to a given stimuli. In this paper we will try to explore/analyze what possibly happens to our human brain/memory when we respond instinctively and when we do not respond instinctively. In this paper we also try to analyze the situations that trigger or do not trigger our instincts. This is a purely theoretical framework with some practical situations/observations.

OBSERVATIONS

Case 1)

We consider the case when the physical/mental body is under stress or distress as our hypothesis is that Instinct operates when the mind is under stress for routine/non-routine tasks.

E.g. A routine job we perform daily - When we have to reach the office in time during the peak morning hours and make an important presentation or have an important meeting to attend in office. We are under stress that whether we will be able to catch our transport in time or beat the morning traffic, if we get late will there be a late mark or will the boss take notice (and maybe reprimand us) or our salary deducted due to this misdemeanor, have we not forgotten anything for that important presentation/meeting, will we be able to impress or meet success/failure for the presentation/meeting, have we carried our lunch box, have we closed all doors/windows/cupboards/gas stoves/electrical appliances before leaving the house, on the way we have to possibly drop our kid to school ; these are some of the concerns at the back of our mind before we actually slam the door of our home, grab our house/car keys/wallet/mobile and catch the bus/train/car to reach office in time intact with all paraphernalia taken care of. Now very often we don't even remember where we have kept our house/car keys/mobile phone etc but we instinctively grab it and rush to our office prior to locking our apartment.

Now let us try to analyze this situation, it is obvious that we are under stress as there are too many constraints/parameters (ifs and buts here) to contend with as mentioned above. As a result the human brain/memory is either overloaded with too many constraints/parameters to contend with and relies on its instincts to fetch the desired items/objects (house/car keys/mobile etc. or perform other routine actions) which is either instantaneous and/or most often accurate/reliable to a certain degree in fetching the desired items/objects or performing

the routine requisite actions before locking the apartment door and rushing out. How does the human brain/memory be able to do/achieve this at greater than thought speed and without even blinking an eyelid? There are three possible theories –

1. Either under stress the body rushes to achieve action under the influence of body hormones or chemicals which are released as a result of stress and which temporarily boosts the brain/memory enabling it to fetch the house/car keys/mobile etc. and perform routine requisite actions instinctively and dynamically.
2. Or/And the brain circuits/memory due to stress react with a surge of electrical impulses which enable it to act in a very fast and efficient manner in retrieving the house/car keys/mobile etc. and perform routine requisite actions again, instinctively and dynamically.
3. Or/And the medium of the brain/memory breaks down, there is an impulse caused due to this short-circuitry of the brain/memory which results in taking the path of least resistance towards those memory locations (e.g. the location of the house/car-keys/mobile etc. and the task locations for performing other routine requisite actions) and to the cognitive parts of the brain responsible for such action/duties dynamically, enabling the human mind/body to fetch/retrieve the house/car keys/mobile etc. and perform other such requisite actions in a very fast and efficient manner, or in other words instinctively.

In short the brain/memory gets dynamically programmed to retrieve information and perform the requisite actions in a quick and efficient manner aka instinctively.

Another example of a distressful non-routine situation. E.g. Suppose we go to a crowded mosque/temple either for prayers or some event/function and we place our footwear at a particular designated location outside the sanctum sanctorum and we store/remember that location in our brain/memory just like parking your car at a parking lot. After the prayers/event/function we exit from the sanctum/sanctorum and go to retrieve our footwear to go home and assume that we discover that we find our footwear is missing. What does one do normally under such a situation – we are under duress or distress at having lost or misplaced our footwear. Some people simply grab another person's footwear and make off with it because he/she can't possibly go barefoot and don't have enough courtesy/patience to wait and/or search. Under normal circumstances the person who has lost/misplaced the footwear waits and goes on a hunt and search mission especially if the object misplaced is dear to him (when I say dear, it need not necessarily mean in terms of cost/money, the object might carry sentimental/emotional/convenience value which the person cares about and he/she is using it for his personal happiness/desire). Now I have observed for low commodity objects such as footwear the objects are typically misplaced and found/discovered by the individual after a few minutes and/or a few scans/scramble at another location. Question is how do the human mind find/discover/retrieve the object of his/her desire after a few scans/scramble, what triggers the human mind to accurately and reliably find/discover/retrieve the object of his/her desire, what are the possible states of mind/brain/memory under such a situation. Does he/she react instinctively or not? Let us try to examine this situation in detail.

It is obvious that faced with above scenario the human mind/brain/memory is initially in a state of shock/disbelief and confused/confounded at the temporary or possibly permanent loss and does not know/understand what to do or how to react because there is a mismatch between the stored memory locations of the object in the brain/memory and the lapse of tangible evidence of the desired object verified by our senses either vision, touch etc. After this initial stage, the brain/memory regains composure due to the circuits/electrical signals/chemical reactions settling down and reaches steady state. Due to our conditioning/genes (Reference : Memory Configuration and Memory Logic in the Human brain by Hatim Kanpurwala - Abhinav Journal of Science and Technology ISSN 2277-1174 April 2012 issue), we go on a hunt-search mission by doing either of the two things, normally –

1. Trying to match with all our senses/inputs/stimuli (notably vision scan) of all the objects within observable reach/distance with the memory of our desired object. If the object has been misplaced somewhere within observable reach/distance and we persist long enough we get a match and are able to find/rediscover/retrieve the object of our desire i.e. our footwear; in plain English we search for all surrounding footwear available if anyone matches our desired personal footwear, we retrieve it and go home after a few minutes. In case the object has been picked up by someone else and is not within observable reach/distance of our senses then we are unable to find/rediscover/retrieve the object of our desire i.e. our own footwear because our senses cannot transcend/reach or observe such distances as the observable reach/distance is beyond the scope/limits of our senses/mind unless of course you have misplaced something as precious as the famous Kohinoor diamond, in which case there will be an International manhunt to find the diamond and prevent it from going in the wrong hands; so, in case if we are unsuccessful in our hunt-search mission either due to lack of persistence or otherwise (beyond the scope/limits of our senses/mind) we might abandon the search and either go barefoot or pick some suitable available footwear in retribution.
2. The other interesting alternate phenomena/action is that our brain/memory like Google scrambles all possible memory locations in our brain for information as to where we “could” have possibly placed our desired object and tries to hunt-search those locations, selectively. Again just as in Google where we see only the first few pages/hits in our hunt-search-retrieval of our desired object and either abandon the hunt-search-find mission or launch a new hunt-search-find query with refined inputs/stimuli (or as in Google terminology refined keywords) which depends on our persistence and the value we place on the desired object of our hunt-search-find mission which is again determined by our conditioning/genes etc. (Refer to the following paper for more information on conditioning/genes : Memory Configuration and Memory Logic in the Human brain by Hatim Kanpurwala - Abhinav Journal of Science and Technology ISSN 2277-1174 April 2012 issue) till we achieve our purpose of selective hunt-search-find mission. If we are unsuccessful in our mission we simply abandon it, chiefly due to lack of persistence or if we are successful we are happy and move on to the next task on hand.

3. And there is a third option whereby you completely stop the traditional hunt-search-find mission and you sometimes look for your desired object at the most unlikely of places or locations and to your surprise find your object of desire in the least expected of places, this phenomenon is called serendipity.

N.B. The example of footwear or the search for some higher value object has been taken merely as an illustration. The task/job can be as complex/non-routine as the search for some good idea or the implementation/building of a non-trivial structure/task or tackling some complex concept/information/idea with our limited resources at hand. I request the reader of this article/paper to view this under this context or light.

Case 2)

What possibly happens when the brain/memory is not overloaded due to stress/distress and is relatively restored/refreshed or idle? Under these circumstances the brain/memory either goes in accumulation/learning or gathering knowledge mode based on either past or new experiences e.g. it's like machine learning (Typical when the memory is minimal or zero as in a child for example, metaphorically learning/experiencing new things in his/her world takes place automatically).

Case 3)

I feel and believe that there is a strong connection between lateral thinking and instinct, in the sense that both are the almost instantaneous results of external inputs/stimuli. I believe the only difference between the two is –

In lateral thinking the user creates/discovers something new e.g. Under conventional thinking/wisdom a person might say that $1+1 = 2$ whereas a lateral thinker might observe that $1+1 = 11$.

Whereas instinct operates typically in finding solutions to the problem(s) at hand, typically in cases of hunt-search-retrieve kind of situations where the answer to a query is stored somewhere but we are unable to get the solution at that instant of time (when I say 'that instance of time' I mean the time of occurrence of a given problem) especially for non-routine tasks; the person using his/her instincts is either successful (if his instincts are well developed) or unsuccessful due to scope limitations of observable reach/distance and persistence.

How does one develop Instinct/Intuition?

The human brain or memory I believe cannot remember more than 8-10 words unless he/she memorizes content by constant repetition. There are several ways to develop instinct e.g.

1. While playing several games such as darts or games where one has to take aim at something. In such games the human brain/mind/human eye connects to the physical object placed at some distance and shoots correctly hitting the target. This obviously takes a lot of focused practice. Some people might call this man-machine interaction etc.
2. I partially developed Instincts while playing marbles during my childhood – I use to lose marbles often – so I decided to practice and focus more – took inspiration from stories of Arjun, Eklaya and Dronacharya of Mahabharata fame. Like Eklaya didn't

understand or have a Guru to guide me but I had faith – so I practiced daily increasing the distance between the marble to strike and my hand and learnt to strike by instinct – after some time I became such an expert that I would tell and strike while playing the game of marbles with my childhood friends. In the game of tops I learnt to strike using correct footwork and hand motion (I noticed that successful strikers would always place their foot in a particular way and strike with a particular motion of their hands – this was 3 dimensional geometry in action in space and time-pure science.

N.B. The above example should be viewed in the perspective that the hunt is the intention to strike a marble or strike at the ring in the game of darts, the search is the intention or thought process to take aim and the find is the strike achieved in the game.

N.B. Other games where I have observed Instincts being used/developed are games such as Football, Hockey etc. where Defenders and Strikers move into positions Instinctively to defend or strike.

CONCLUSION

1. I believe and conclude that brain/memory load plays an important role in instinct and machine learning. Instinct operates typically under stress whereas machine learning takes place under relaxed environments.
2. Instincts are well developed/well behaved in almost all human beings for routine jobs but in the case of non-routine complex jobs instincts depends on the individual's training he/she has received, his/her observable reach or distance, his/her persistence and the value he/she places in finding/achieving desired objects/goals. The speed and performance of instincts are a measure of the individual's capability. The more well developed an individual's instincts are the more capable and successful he/she is in life.
3. Also there is a strong connection between lateral thinking and instincts, where I believe in the former case (lateral thinking) the creative part of the brain plays a more dominant role whereas in the latter case (instincts) the rational part of the brain plays a more dominant role (Kindly Refer to Memory Configuration and Memory Logic in the Human brain by Hatim Kanpurwala - Abhinav Journal of Science and Technology ISSN 2277-1174 April 2012 issue, for more information on Rational/Creative parts of the brain).

IMPLICATIONS AND POTENTIAL APPLICATIONS

1. If the behavioral patterns or situations could be simulated to reproduce instincts and lateral thinking, we could possibly train personnel to operate these two faculties of the human mind/brain to resolve many problematic situations and find creative solutions.
2. If we are to get a handle on instinctive behavior or lateral thinking we could develop advanced robots to handle situations/problems where it is not possible for human beings to resolve such problems/situations due to physical/mental limitations, the advanced robot might be able to come up with timely, efficient, accurate and reliable solutions to these situations/problems.

3. Might help us in resolving hard problems (Refer to NP Hard problems in Computer Science on the Internet) by seeking some optimal/suitable solutions with better accuracy, reliability and performance/efficiency.
4. Might help us in determining optimal brain/memory load on humans/robots for superior performance and appraisal of human ability/capability.
5. Might aid us in resolving fuzzy logic category of problems.

SUMMARY AND SCOPE FOR FURTHER RESEARCH

It is obvious that this is a very grey area of research with a vast potential as is borne by some of the implications illustrated in this paper. If this area is pursued I believe it will reap rich dividends.

REFERENCES

1. Paper on “Memory Configuration and Memory Logic in the Human brain” published by Hatim Kanpurwala - Abhinav Journal of Science and Technology ISSN 2277-1174 April 2012 issue.