"Humans are pattern-seeking animals and we are adept at finding patterns whether they exist or not" (adapted from Michael Shermer). Discuss knowledge questions raised by this idea in two areas of knowledge."

Number of words: 1598

The British English dictionary defines a pattern as 'a particular way in which something is done or organized, or in which something happens', but from personal experience, I have learned that patterns are much more complex and objective than the simple description offered by the dictionary. A pattern is an arrangement of elements, which follow a defined rule and therefore, form a large scale, create a visible and more tangible structure. Most human and natural sciences, along with mathematics, depend on the construct of patterns to create an investigation, hypothesis and analysis of either very specific or very broad concepts. Other areas like music and the arts are in a constant yet unaware use of harmonic patterns in the making of a composition. The natural world is filled with both obvious and unclear patterns that reign over how the universe works.

It is the discovery of patterns that allowed the human race to develop as much as it has; it is thanks to people's curiosity and need for answers that such things as scientific and mathematical formulas, behavioural patterns (of both humans and animals) and a clear insight of how the natural world works, have been discovered over time. Nevertheless, patterns and humans natural curiosity to find them, seems to be a condition dismissed by Michael Shermer, who states that sometimes humans are too persistent in looking for patterns and explanations, even when there might be none, practically claiming that this behaviour is a waste of time and that the persistency can tend to become naïve, unrealistic, and too forced.

The first question that comes to mind after reading Michael Shermer's phrase is -Why are humans so determined in looking for patterns even when there is some evidence that shows, such patterns may not exist (in the context of exploration)? My answer is simple. The human race has built itself around knowledge, and most of this knowledge was acquired through the discovery of patterns, therefore curiosity and the need for an understandable explanation of things becomes an important aspect of human lives.

Though the statement above supports the continuous search for patterns, it does not imply that those are always correct. Illusory correlation is a perfect example of how the search for patterns can sometimes lead to misinterpretations of behaviour and even show the cause behind stereotypes. Illusory correlation is a phenomenon where people mistakenly create relationships between variables, where none actually exist. It is believed that such phenomenon occurs because the brain tends to relay on information that stands out, and therefore ignores most of the other information provided. An example of illusory correlation is the stereotype of city people being rude. The stereotype tends to be believed by most because the event of having someone being rude to you is much more memorable than nothing wrong happening. So if someone (in the city) misbehaves towards you once, all the other times people have been nice will be dismissed. The belief of city people being rude will then take over.

It is also important to question the authenticity of the need for knowledge, after all, are humans really born curious and with a desire for knowledge or are they taught that they should want knowledge? There is a reason why education became such a necessity and privilege since the very beginnings of civilization. Curiosity doesn't seem to be enough for humans to develop their more rational side, therefore education in various areas becomes important in the formation of an integral person, making it easier for such to discover and explore. Education also becomes an important aspect when discussing the formation of relevant patterns, after all revealing patterns with no bases

or proof behind them, makes them inaccurate and unreal. For example, within the mathematics field, proving theorems and pattern equation discoveries are essential for the usage of such. Srinivasa Ramanujan was an Indian Mathematician who, through trial and error and very acute observations of patterns between the theory of numbers, achieved great discoveries of the properties of the partition function. His theory was, at first rejected by professors and other mathematicians at Cambridge, until he proved through millions of previously established mathematical equations that his own function of partition numbers did work.

Going back to the first question, another reason why humans are so adept at looking for patterns has to do with uncertainty. Whenever we are in situations that are unknown (or mostly unknown) the brain looks for a way to fill in the gaps making us feel more secure. This is called illusory pattern perception, where people will perceive images, and find patterns when these really don't exist. Sometimes, this behavior of using previous situations and knowledge to analyze a new environment is helpful when understanding how to act and what to expect, the brain's defense mechanism against uncertainty is definitely useful, but not at all times. As said before, patters can be found, but without proof, these aren't necessarily true, and as these are constructed through previous knowledge, the patterns found tend to be subjective instead of objective and universal.

The risk with assumptions is that they also tend to be wrong. It might help as a comfort but it also becomes a blinding asset when interpreting information. After all, these assumptions tend to stay in one's mind, and in the same way as the illusory correlation, be more relevant than actual facts. Stereotypes and misjudgment become reinforced by the misleading search of explanation.

But then a second question comes to mind, How can the discovery and use of patterns be used as a tool to predict future scenarios? If seen from a perspective of the mathematics, the search for patterns results in the creation of formulas and equations used in the theory of different subjects (like for example physics) to predict the outcome of real scenarios. Linear functions come as a perfect example. The placing (coordinates) of two single dots in a space is enough to create a linear function and therefore predict the movement of such points along it. These predictions are presented in theory and in real life, normally with impressive accuracy when it comes to proving the patterned equation, though there are sometimes affecting variables which are not taken into account from the start, affecting the results in the real life event.

A more complex example of the use of mathematic theory (in relation to patterns) and a real life event was the first rocket launch with people inside. It wasn't only the distance, weight and force that needed to be calculated for NASA to shoot it into space. Other variables like angle, gravity, torque, pressure, the material resistance against friction, timing for launch (taking into account earth's rotation), the orbits pull, among many other different calculations were needed for the first astronauts to reach space. The launch turned out successful thanks to the accuracy of the formulas obtained through the discovery of existent natural patterns that have provided us with such things as the laws of physics.

Behaviorists are adept at finding human (or animal) behavior patterns that allows them to predict their conduct in specific situations. There are many approaches to behaviorism, some more personal and intimate, while others more focused on the social aspects of behavior. The important thing about this branch in psychology is that by the research of human behavior, and with multi-perspective analysis, behaviorists have been able to achieve a prediction of the way a person or a population will react to stimuli, and as such, a benefit that comes from behaviorism is the possibility of

changing a behavior. Positive reinforcement therapy is a great example of the knowledge that is obtained from behaviorism, like when a company raises a workers payment because of their excellent performance. The behavior of working hard is reinforced on that person, and his/her coworkers will want to receive such benefit too, therefore their behavior will also change into more hardworking people.

Again the use of pattern seeking becomes important in the discovery and prediction of events. It is important to take into account, that psychology and its interpretations comes subjectively biased and therefore has a larger error percentage than mathematics and established formulas. This does not mean that the patterns don't exist, it is more veracious to say that because of the affecting variables and how rash human choices tend to be, variability is much greater.

After reflecting, I came to the realization that a lot of our technology built up, theories, and formulas have been found thanks to the pattern seeking behavior that humans have. This specific behavior and eagerness to discover patterns and find new knowledge is what has brought the human being such advancement as a species, and what has allowed us to progress as a society. Discovering patterns is an essential way of constructing theories, of discovering constants, of finding correlations and relations between different groups, create symmetry and so on.

It has become important too, to be aware of how objective and subjective can a pattern be, after all some of the patterns found come from personal backgrounds and can be highly influenced by culture, ethnicity, time (in history), the way in which one was brought up among other past influences, making behavioral patterns mostly personal instead of universal. Thus, to prove and to disprove patterns with tangible facts, exploration and thorough discovery, seems like an essential part of what composes a realistic theory. Searching for patterns is needed, and to be persistent in finding them is

incredibly important, after all, it is what makes us develop and grow as an advanced

species.

No cited sources