PHRENOLOGY – INTERPRETING THE MIND

Phrenology is the doctrine that proposes that psychological traits of personality, intellect, temperament, and character are ascertainable from analysis of the protrusions and depressions in the skull. It was an idea created by Franz Joseph Gall in 1796. Gall referred to his new idea in English as cranioscopy. It was only later that Johanne Spurzheim, one of Gall’s students, labeled the idea phrenology after Gall’s death. Gall’s idea was spurred when he noticed that university classmates who could memorize great amounts of information with relative ease seemed to have prominent eyes and large foreheads. He speculated that other internal qualities, besides memory, might be indicated by an external feature also. Gall theorised that traits were located in particular regions of the brain. Enlargements or depressions in the brain in particular areas meant a greater than normal or less than normal quantity of the given trait. It was assumed that the external contour of the skull accurately reflected the external contour of the brain where traits were localized.

Carl Cooter, another advocate of phrenology asserted that there were five major parts to phrenology theory. The first was simply that the brain was the organ of the mind. The second was that the brain was not a homogeneous unity, but a compilation of mental organs with specific functions. The third was that the organs were topographically localised. The fourth was that the relative size of any one of the organs could be taken as a measure of that organ’s power over the person’s behaviour. The fifth and final part of Cooter’s theory was that external craniological features could be used to diagnose the internal state of the mental faculties. All of these parts were based on observations Cooter made.

Sebastian Leibl, a student of Cooter’s, theorized that there could be anywhere from 27 to 38 regions on the skull indicative of the organs of the brain, each of which stood for a different personality characteristic. Leibl further theorised that the different regions of the brain would grow or shrink with usage, just as muscles will grow larger when exercised. If a certain part of the brain grew from increased use, the skull covering that part of the brain would bulge out to make room for the expanded brain tissue. With these assumptions, the bumps on one’s skull could be felt and the abilities and personality traits of a person could be assessed.

Spurzheim put a more metaphysical and philosophical spin on Gall’s concept when he named it phrenology, meaning “science of the mind”. To Spurzheim phrenology was the science that could tell people what they are and why exactly they are who they are. Spurzheim wrote that the premise of phrenology was to use the methods to identify individuals who stood out at both poles of society: those with a propensity for making important social contributions and those with a greater than normal tendency for evil. The former were to be encouraged, nurtured, and developed in order to maximize their potential for good. The latter needed to be curbed and segregated to protect society from their predisposition to be harmful to others.

Phrenology has met up with a good deal of criticism since it was proposed, but over time
it has also been credited for certain things. John Fancher, a critic of phrenology, states that it was a curious mixture, combining some keen observations and insights with an inappropriate scientific procedure. Most criticism is aimed at the poor methods used by phrenologists and the tangent from standard scientific procedure in investigating.

Pierre Flourens was also appalled by the shoddy methods of phrenologists and was determined to study the functions of the brain strictly by experiment. The specific technique that Flourens used was ablation, the surgical removal of certain small parts of the brain. Flourens was a very skilled surgeon and used ablation to cleanly excise certain slices from the brain. He ablated precisely determined portions of bird, rabbit, and dog brains. Flourens then observed the behavior of his subject. Since, for obvious ethical reasons, he was only able to use animals, he could not test uniquely human faculties. He never tested or measured any behaviour until he nursed his subjects back to health after their operations. Flourens’s subjects did show a lowering of all functions but not just one function as Gall’s theory would have predicted. Gall asserted that he wiped out many organs all at once when he ablated part of the brain. This explained the general lowering of all functions in many of his subjects. Despite attacks from Flourens and others, phrenology held its appeal to scientists in Europe who would bring the idea across to America where it would flourish.

Questions 1 – 8

Answer questions 1 - 8 below by writing the initials of the phrenology scientist to which the questions refer in boxes 1- 8 on your answer sheet. The initials of the phrenology scientists are in the table on the following page.

NB In one question you must write the initials of TWO phrenology scientists.

1 Which phrenology scientist did not use the term phrenology?

2 Which phrenology scientist theorised that you could identify people’s morality using phrenology?

3 Which phrenology scientist theorised that the size of certain parts of human brains would increase if they were used a lot?

4 Which TWO phrenology scientists did not agree with the way phrenologists came to their conclusions?

5 Which phrenology scientist theorised that the size of a certain part of the brain corresponds to that part of the brain’s influence over a person’s actions?

6 Which phrenology scientist theorised that the human brain was a collection of cerebral organs?

7 Which phrenology scientist was an expert at performing operations?

8 Which phrenology scientist proposed theories based on his observations of colleagues?
Questions 9 - 14

Read the passage *Phrenology - Interpreting the Mind* again and look at the statements below.

In boxes 9 - 14 on your answer sheet write:

TRUE  
if the statement is true

FALSE  
if the statement is false

NOT GIVEN  
if the information is not given in the text

9  Flourens conducted brain experiments on human patients.

10  The theories of phrenology thrived in America.

11  Gall theorised that phrenology could only indicate memory ability.

12  Flourens worked with Fancher to investigate phrenology using standard scientific experiments.

13  Gall also conducted experiments on live subjects.

14  Spurzheim’s theories were used by governments as a rationale to segregate certain undesirable parts of society.
DETECTING DECEPTION

According to lay theory there exist three core basic signs for spotting liars. These are speaking quickly and excessive fluctuations in pitch of voice, the liar becoming fidgety and hesitant when questioned on detail, and failure to make eye-contact. There is nothing too perplexing about that. Yet, a good liar will be just as aware of these as the person they’re lying to and thus will ensure that eye contact especially is evident. Shifty eyes can indicate that someone is feeling emotional perhaps from a lie, or perhaps just from nerves as a result of lying. Of course, this does not apply to instances where eye contact is non-existent, like during a telephone conversation. Psychologist Paul Eckman states that extensive use of details can make lies more believable. But they can also often trip up the liar. If the details change or contradict each other, you should suspect you’re being had.

There exists an intrinsic link between emotional connections and effective lying. The notion is that it is harder to lie to those whom we know well and care for. There are two reasons for this: firstly, those close to us are more aware of our mannerisms and behavioural patterns and can more readily detect our default lying techniques. The second reason is that people we don’t know lack the emotional response that people we are close to have regarding lying. Robert Galatzer-Levy, MD, a psychoanalyst in private practice, reasons that, “The good liar doesn’t feel bad or have a guilty conscience, so it’s much more difficult to pick up on cues that they are lying.” This is why it is apparently so easy for salesmen and politicians alike to lie so effortlessly.

Recently a lot of politicians have been making outrageous claims about their ability to tell when a person is lying. Many lay people apparently believe that people can make a pretty good assessment of when a person is lying or not. Research illustrates, however, that nothing could be further from the truth.

University of Maryland professor, Patricia Wallace, an expert on deception detection states, “Psychological research on deception shows that most of us are poor judges of truthfulness and this applies even to professionals such as police and customs inspectors whose jobs are supposed to include some expertise at lie detection.” She then goes on to describe two of the many experiments in the psychological research literature which support this contention.

The first study was conducted in 1987 and looked at whether police officers could be trained to detect deceptive eye witness statements. They watched videotaped statements of witnesses, some of whom were truthful and others who were not. They were told to pay close attention to non-verbal cues, such as body movements and posture, gestures, and facial expressions. They were also instructed to pay attention to the tempo and pitch of voices. In the end, however, the officers did only slightly better than chance at determining whether the witnesses were being truthful. And the more confident the officer was of his or her judgment, the more likely he or she was to be wrong.

Airline customs inspectors, whose very job is to try and determine suspiciousness and lying, and lay people were used in another experiment. The inspectors and lay people in this
experiment weren’t given any specific training or instructions on what to look for. They were simply told to judge the truthfulness of mock inspection interviews viewed on videotape and determine whether the passenger was carrying contraband and lying about it. The “passengers” being interviewed were actually paid volunteers whose job it was to try and fool the inspectors. Neither lay people nor inspectors did much better than chance. When questioned about what types of signs they looked for to determine lying behavior, the inspectors and lay people relied largely on preconceived notions about liars in general: liars will give short answers, volunteer extra information, show poor eye contact and nervous movements and evade questions.

What nearly all deception experiments have in common to date is that they use videotape instead of live people in their design. Some might argue that it is this very difference which politicians and others are trying to emphasize. This is that people can’t tell when people are lying on videotape but can when the person is there, live, in front of them. Without research teasing out these subtle differences, however, it would be a leap of logic to simply assume that something is missing in a videotaped interview. This is a seemingly baseless assumption. A person interviewed on videotape is very much live to the people doing the interviewing. It is simply a recording of a live event. While there may be differences, we simply don’t know that any indeed exist. Without that knowledge, anyone who claims to know is simply speaking from ignorance or prejudice.

The conclusions from this research are obvious. Trained professionals and untrained lay people, in general, cannot tell when a person is lying. If you’ve known someone for years, your chances for detecting truthfulness are likely higher, but strangers trying to guess truthfulness in other strangers will do no better than chance in their accuracy.

Questions 15 - 20
Do the following statements reflect the views of the writer in Reading Passage 2?

In boxes 15 - 20 on your answer sheet write:

YES  
if the statement agrees with the information

NO  
if the statement contradicts the statement

NOT GIVEN  
if there is no information on this in the passage

15 Tactics that liars use to trick people frequently give them away.

16 Good liars show less emotional response to the fact that they are lying.

17 In the two experiments described in the text, the police performed better than the airline customs inspectors.

18 The preparation for both experiments described in the text were very similar.
Questions 21 - 24

Complete each of the following statements (Questions 21 - 24) with words taken from Reading Passage 2.

Write NO MORE THAN THREE WORDS for each answer.

Write your answers in boxes 21 - 24 on your answer sheet.

21 It has been put forward that politicians use the ____________ between speaking live and on television to help them fool people.

22 Liars are often ____________ the things that people look for in liars.

23 Two vocal clues that policemen listened for in their experiment were ____________.

24 ____________ were used to try and fool the airline customs inspectors and lay people.

Questions 25 - 27

Using NO MORE THAN THREE WORDS OR A NUMBER from Reading Passage 2, answer the following questions.

Write your answers in boxes 25 - 27 on your answer sheet.

25 Apart from television, what example does the text give of conversation when people don’t look each other in the eye?

26 Who have recently asserted that they can spot liars easily?

27 What is the similarity in most psychological lying research?
READING PASSAGE 3 Questions 28 - 40

You should spend about 20 minutes on Questions 28 – 40 which are based on Reading Passage 3 below.

The History of Paper

A

When we think of the origins of paper, our minds might wander back over 5000 years ago to the Nile river valley in Egypt. It was there that a marsh grass called Cyperous Papyrus flourished. The Egyptians cut thin strips from the plant’s stem and softened them in the muddy waters of the Nile. These strips were then layered in right angles to form a kind of mat. The mat was then pounded into a thin sheet and left in the sun to dry. The resulting sheets were ideal for writing on. Since they were also lightweight and portable they became the writing medium of choice of the Egyptians, Greeks and Romans for record keeping, spiritual texts and works of art.

B

Paper as we know it today comes from another source, China. It wasn’t until the 3rd century that the secret art of papermaking began to creep out of China, first to Vietnam and later to India. It made its true push westward in 751AD when the Tang Dynasty was at war with the Islamic world. During a battle on the banks of the Tarus River, Islamic warriors captured a Chinese caravan which happened to include several papermakers. They spirited them away to Samarkand, which soon became a great centre for paper production. Finally, when the Moors from North Africa invaded Spain and Portugal they brought the technology with them and so it was that papermaking entered Europe in the 12th century.

C

In Europe, the use of papyrus had dropped out in the 9th century. The preferred medium for the artists and literati of the time was the smooth and lustrous parchment. However, parchment - made from animal skin - was extremely expensive. The notion of paper being used as a practical everyday item did not occur until the 15th Century when Johann Gutenburg perfected movable type and sparked off a revolution in mass communication. The birth of the modern paper and printing industry is commonly marked from this time.

D

Printing technology rapidly developed and created an ever increasing demand for paper. Early European paper was made from recycled cotton and linen - and a huge trade quickly developed around the trading of old rags. It is said that the black plague entered England from Europe on these old rags. Others experimented with fibres such as straw, cabbage, wasp nests and finally wood. This resulted in inexpensive - and replaceable - materials for paper making. Today, the long soft fibres of softwoods such as spruce have become the most suitable source of pulp for mass production.
E

The demand for paper also created the need for greater efficiency in production. In the late 18th century the labours of Nicholas Luis Robert resulted in the creation of a machine that could produce a seamless length of paper on an endless wire mesh with squeeze rollers at one end. Perfected and marketed by the Fourdrinier brothers, the new machine made papers that soon replaced traditional single sheets made by hand. In Europe and America, the mass-production of paper became a thriving industry supplying huge volumes of paper for a huge variety of purposes.

F

Papermaking in essence is a simple process. Whether using recycled materials or fresh organic matter, the process starts as the material is shredded into small strips and soaked overnight to loosen the fibres. Next, the fibres are boiled for 2 to 6 hours, being turned every so often. When finished, the fibres are washed with fresh water to remove impurities and then small particles or specks are removed by hand. The fibres are beaten in a blender creating a creamy pulp. At this stage, dyes can be added to create coloured papers. The pulp is then poured into a large tub and the fibres are suspended in the water. Framed screens are lowered into the water and then lifted to the surface catching the fibres onto the screen. The screens are then dried, pressed and smoothed.

G

In the west, as industrial paper production boomed, the art of hand paper-making has been driven nearly to extinction - being practiced only by a few fine artists and crafts people. However, in small areas throughout Asia, the tradition has lived on through regular and rice paper made by hand. Incidentally, the traditional Asian paper which is often referred to as “rice paper” is not made from rice fibres at all. More commonly it is made from the versatile mulberry tree - varieties of which are also used for feeding silkworms and in medicine. In contrast to the cold precision and standardisation which industrial production demands, the soft, subtle textures and natural feeling of handmade paper is said to echo the warm heart of the papermaker who makes each sheet with devotion.

H

The new Millennium will be dominated by the tremendous progress that has been made in computer science, thus triggering a complete change in our commercial and private communication and information behaviour. Does this mean that the paper era will come to an end? The answer is most definitely “No”. Clearly there will be a huge amount of data being generated electronically, but the issue is how to preserve it. The difficulties of data storage over a long period of time are well known (for example, the durability of disks; frequent changes of hardware and software, electronic breakdowns etc.). Once again, paper offers the most convenient and durable storage option.
Questions 28 - 34

The reading passage on *The History of Paper* has 8 paragraphs A – H.

From the list of headings below choose the most suitable headings for paragraphs B – H.

Write the appropriate number (i – xi) in boxes 28 – 34 on your answer sheet.

NB There are more headings than paragraphs, so you will not use them all.

<table>
<thead>
<tr>
<th>Example</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paragraph A</td>
<td>iv</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Arabian Expertise</th>
</tr>
</thead>
<tbody>
<tr>
<td>i</td>
<td>Traditional Paper Producers</td>
</tr>
<tr>
<td>ii</td>
<td>Superstition</td>
</tr>
<tr>
<td>iii</td>
<td>The Origins of Paper</td>
</tr>
<tr>
<td>iv</td>
<td>The Development of Mass Production</td>
</tr>
<tr>
<td>v</td>
<td>The Journey to the West</td>
</tr>
<tr>
<td>vi</td>
<td>The Prospects for Paper</td>
</tr>
<tr>
<td>vii</td>
<td>The Age of Experimentation</td>
</tr>
<tr>
<td>viii</td>
<td>The Father of Modern Paper</td>
</tr>
<tr>
<td>ix</td>
<td>The Modern Process</td>
</tr>
<tr>
<td>x</td>
<td>A Change of Material</td>
</tr>
</tbody>
</table>

28 Paragraph B

29 Paragraph C
Questions 35 - 38

Look at the following 8 statements A - H. According to Reading Passage 3, which FOUR statements are TRUE? The other four statements are either false or the information is not given in the passage. Choose from the appropriate letters, A - H, and write them on your answer sheet for questions 35 - 38. The answers may be written in any order.

| A | Today’s style of paper originated in Egypt. |
| B | Papyrus style paper was employed up to the 18th century. |
| C | There is a story that disease was spread due to the great demand for paper. |
| D | The author cites reasons why computer technology is not dependable. |
| E | Rice Paper has been used in medicine. |
| F | Paper was not used extensively until movable type was commonly used. |
| G | Robert’s invention led to the redundancy of the hand made paper industry. |
| H | Today paper is no longer hand made. |
Questions 39 and 40

Using the information in the passage, complete the flow chart below.

Write your answers in boxes 39 and 40 on your answer sheet.

Use NO MORE THAN THREE WORDS from the passage for each answer.

The Paper Production Process

- The paper raw material is (eg) ____________ and then saturated in water. 
  - Answer: shredded

- The sodden material is then boiled while being turned periodically.

- Material fibres are washed and checked manually.

- Fibres are then blended to (39) ________________.

- Colouring added if desired and mixed with water.

- (40) ________________ are dipped into the liquid.

- Liquid paper is then pressed, smoothed and dried.

- Dried paper is cut packaged and distributed.