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The Applications of Psychology



The Practical Issue



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**Want to get involved in the production of PsychOut?
Simply email Alex at psychout@yusu.org for more information,
no previous writing experience is required!!**

Editor's Letter



Alex Reid

A new term is upon us and with it brings a new issue of PsychOut from our fresh faced band of rather brilliant young writers. Of these in particular I would like to thank Grace Rice, the former editor of this fine publication. Not only was Grace key in originally establishing PsychOut over a year ago but she has worked hard as the editor on every issue since. The publication is very much her baby and, as the new editor, I am privileged to be taking over the reigns of such good work. I therefore promise not to drop the baby on it's head! If I do make a dogs dinner of things, I hereby give Grace permission to squeeze me into a skinner box and train me to be a better editor using lots and lots of 'mechanically induced negative reinforcement'.

I am pleased to say that Grace has agreed to stay on as a writer and her work can be found nestled alongside other gems pertaining to the theme of this issue: 'the Applications of Psychology'. This far reaching remit explores topics as diverse as magic, happiness and the detection of consciousness itself. I hope you enjoy reading them as much as I did.

*All the best,
Alex*



Adele Goman



Hannah Voss



Grace Rice



Ivan Alvarez



Francina Clayton



Rosalind Baker



Cassie Barton



Features

Our Features Section is where large topics in Psychology are discussed. Previous articles include the history of Psychology, the effects of alcohol on behaviour and autistic savants...

Can conscious awareness be detected through brain activity?

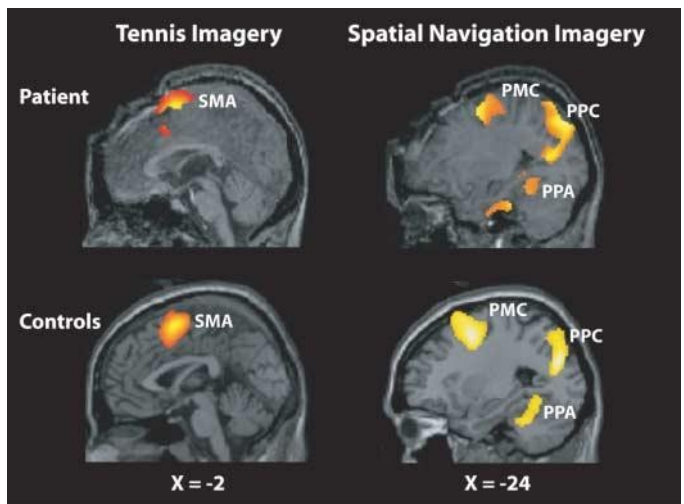
Grace Rice

With the theme of the applications of psychology in mind, this article explores the groundbreaking and controversial field of detecting consciousness through neuroimaging techniques and examines the associated ethical problems.

Awareness is key in defining consciousness, a person who is said to be fully conscious is both awake and aware, conversely those who are comatose are neither awake nor aware (Laurey, 2005). However, it is possible to be awake but have no awareness of one's surroundings; this is termed a persistent vegetative state (PVS). Although when working towards a diagnosis of a patient's level of consciousness most of the evidence comes from inferences (Plum & Posner, 1980 as cited in Owen & Monti, 2010) such as the level of voluntary behaviour which is produced in response to clinical tests.

With the questionable validity of these tests, the decision to diagnose a patient as being in a PVS is a serious one. This is exacerbated further when in 1993 legislation was brought in so that once a patient has been in a PVS for more than 12 months it is said to be a permanent PVS (Multi Society Task Force on PVS, 1994), meaning applications could be made to the High Court to apply for a withdrawal of treatment (Airedale NHS trust vs Bland, 1993 as cited in Wade & Johnston, 1999).

Research in 2006 by Owen and colleagues created implications for the decisions regarding treatment withdrawal in PVS patients. Owen et al (2006) examined the theory that there were



'Islands of consciousness': the findings of Owen et al. (2006) suggest elements of consciousness in patients diagnosed with PVS

'islands' of consciousness within the brain's of PVS patients which could not be tested through traditional clinical tests. A 23 year old patient was tested who had sustained a severe traumatic brain injury, resulting in a vegetative state. Two fMRI experiments were used, the first measured reactions to spoken sentences. Results showed a bilateral increase in activity in the middle and superior temporal gyri; this was the same pattern of activation seen in healthy controls. The second experiment directly measured the level of conscious awareness, as it was noted that speech perception could still occur in its absence. The patient was asked to perform two mental imagery tasks, either imagining playing a game of tennis or navigating around their house. Remarkably, when the patient was in the 'tennis condition' an increase in activity

was seen in the supplementary motor area and when the patient was in the 'spatial navigation task' there was increased activity in the parahippocampal gyrus, posterior parietal cortex and lateral prefrontal cortex. Furthermore this pattern of activation was sustained across the 30 second condition (Owen et al, 2007). Again, this was the same pattern of activation seen in healthy controls. Owen et al concluded that because there were voluntary, task dependent responses which required no training, there was evidence of covert conscious awareness in the patient. Owen et al's (2006) discovery of covert consciousness in PVS patients has brought forth the suggestion of using fMRI to detect consciousness, which could have an impact upon the diagnosis of patients. Furthermore it has opened up an ethical debate as to whether it is 'right' to remove the treatment of patients who still have some aspects of awareness.

One case where this knowledge may have had an impact is that of Terri Schiavo. Terri sustained serious brain damage because of oxygen deprivation to the brain following a cardiac arrest in 1990. She spent two months in a coma before her diagnosis was adjusted to a vegetative state. Following this progression Terri underwent various rehabilitation programmes in the hope of improving her condition, none of which had much success. The legal battle began in 1998 when Terri's husband expressed a desire to remove her feeding tube because of a lack of conscious awareness. Her parents opposed this decision as they believed that she was still conscious. The first wave of appeals concluded that Terri would not want to continue with life preserving measures and as a result



The tragic case of Terri Schiavo: technology does not necessarily make ethical decisions easy

her feeding tube was removed on the 24 April 2001; however it was reinserted a few days later because there was a dispute over her husband's intentions. All in all there were 14 appeals in the Terri Schiavo case as well as excessive media coverage to the extent to which the then president George W. Bush became involved. Finally after seven years of dispute, Terri's feeding tube was removed on 18th March 2005 and she died a few weeks later on the 31st March. She was 41 years old (Perry, Churchill & Kirshner, 2005).

By using the methods suggested by Owen et al it may be easier to determine whether or not a patient has conscious awareness; this knowledge may have also impacted on the outcome of Terri's case. However Owen's results have been interpreted by some as creating an ethical paradox. On one hand some see the discovery of covert consciousness as a reason not to allow the withdrawal of treatment. On the other hand, others have argued that the presence of consciousness in patients with no voluntary behavioural control is a greater reason to let them die and to relieve any psychological and physical suffering (Wilkinson Kahane, Horne & Savulescu, 2009).

Despite the evidence for covert conscious awareness in PVS patients, other researchers have suggested alternative explanations for the trends seen in Owen et al's (2006) research. One such explanation is put forth by Wilkinson et al (2009), who suggested that the pattern of activation was seen because the patients were not truly in the vegetative state but actually a minimally conscious state (this differs from the vegetative state in that patients are able to produce voluntary behaviours which are differentiated from reflexes). This criticism has produced the possibility of testing permanent PVS patients and observing whether the same pattern of activation is seen.

The application of neuroimaging techniques to clinical practice and diagnosis for disorders of consciousness is a relatively new area. With better imaging techniques being developed, the trend seen by Owen and colleagues can be explored in greater detail and potentially used as a clinical tool for determining patients consciousness levels. Further research may also lead to a review of the legislation for the removal of medical treatment of PVS patients.

How to be happy

Hanna Voss

Everyone wants to be happy. Human life revolves around it. Most things we do on a day to day basis are ultimately geared towards our happiness. We go to work to earn money so we can live a comfortable lifestyle, we send our children to school and university so they can achieve a highly paid job and we spend our hard earned money on leisure activities that we enjoy. Some people even go to dangerously extreme lengths because they believe it will increase their 'happiness' such as taking drugs and engaging in criminal behaviour. As such, there has been in depth research in the field of psychology into how emotions are felt. For example, what causes them and how we might alleviate the negative emotions (i.e. fear and anxiety) and encourage the positive (i.e. amusement and contentment). There are as many different definitions of happiness as there are studies on the subject, ranging from very complex to simplistic.

For the purposes of this article, the definition of happiness is one of the most simplistic and is used by Richard Layard in his book 'Happiness: Lessons from a New Science'. He defines happiness plainly as 'feeling good' (Layard, 2005). In this article, five points are listed that research has shown can increase levels of happiness. Follow them and you might feel good!

1. Give something.

Although gaining things in life has the potential to make people feel good, happiness is 'highly habitual' (Seligman, 2004), which means that something which can initially provide feelings of happiness might quickly come to only produce a neutral state as we get used to it. Giving also makes people feel good, and has been found to be a more enduring form of



Happiness: try to have a ball

happiness, that takes longer to habituate to. This doesn't mean merely giving physical objects; it has been found that saying thank you can make the thanks giver happier and less depressed as much as 3 months later (Seligman, 2004). Even small expressions of thanks to people you come across in day to day life can have an impact on your happiness levels.

2. Read happy.

Research has shown that happy and sad moods can be induced by the simple act of reading positive or negative information which refers to the self. Velten (1968) gave participants a list of statements which were both self-referential and positive to read and concentrate on, and found that moods could be altered by reading such statements. This may seem unlikely, but it may be worth a try. Keeping a list of positive things you like about yourself is a start, and this list can be referred to whenever you need an extra boost of happiness or reminding of the good things in life!



Giving: if altruistic balloon provision doesn't help cheer you up surely helium induced squeaky voices will?

3. Be sociable.

Human beings are social creatures, and social interaction can provide us with a massive happiness boost. Research has associated the quality of our personal relationships with happiness levels (Lucas & Dyrenforth, as cited in Demir, 2009), suggesting that the more positive relations we have with other people, the happier we are overall. This is explained further by the notion that we define ourselves by our social ties (Layard, 2005), so an individual with few close relationships in their life may feel a lack of identity and as if they do not have a well established place in the world. This emphasises the role of friends and family in our lives, and the importance that we have positive relations with them. One way to potentially increase happiness, then, is to simply put the effort into friendships.

4. Increase your trust.

Admittedly, the extent to which people trust each other is a problem that concern societies as a whole rather than individuals, and it is a saddening fact that in America, the number of people who think that most other people are trustworthy has halved since the 1950s (Layard, 2005). Unfortunately, this is bad for happiness levels, as it is thought that human beings feel more content when they can trust others. As trust levels have decreased in the last 50 years, whether it due to increased divorce rates, higher rates of crime or the growth of individualism, so have happiness levels. So how might this information make you a happier person? Although society may never return to levels of trust that have been known in the past on an individual level a start might be to forge relationships built on mutual trust and honesty. This, in turn, would most likely increase personal levels of happiness and satisfaction gained from those relationships.

5. Get in 'the flow'.

Psychologists have identified a state of being which they have named 'the flow'. It occurs when an individual becomes very absorbed in an activity and derives great pleasure from becoming so immersed. It is often associated with tasks such as

playing music, sport or writing, and occurs most commonly amongst individuals who have higher than average skill in such tasks. Anyone can experience 'flow' to a greater or lesser extent during their day to day experiences. Doing anything you enjoy which requires a level of concentration and which you can focus completely on can induce flow, even being at work. Research has shown that 'the less people focus on themselves, the happier they are', (Smith, as cited in Csikszentmihalyi, 2000), therefore any activity which requires external effort and attention may increase happiness.

'Research has shown that the less people focus on themselves, the happier they are'

These are only five among a plethora of sources of happiness that have been studied. Psychologists are still exploring the things that make us happy and sad and are constantly analysing how society could be organised in order to maximise both group and individual happiness. On a personal level, how people find happiness is very subjective, but trying these five steps might at least help cheer you up!



Get in 'the flow': find something you love doing. Winston Churchill, for example, learned how to become a master bricklayer to help stave off depression

Neuromarketing: a tough sell

Ivan Alvarez

Neuroscience and marketing may initially seem like an odd pairing of disciplines, but such is the role of the relatively new field of neuromarketing. What exactly is it? What is it good for and what implications does it have? This is the story of the buying brain.

The word 'neuromarketing' was coined no more than 10 years ago to describe the application of neuroimaging technologies to measure the brain responses to market situations. A typical experiment would involve fMRI participation while observing a new product or a televised commercial – the resulting imaging data would then be interpreted to determine the subject's preference. The key selling point of this methodology is the removal of 'subjective reporting' which might be obscured by cognitive bias or the ambiguity of language. But to what extent can it actually do this?

Due to the relative recency of the field, very little prior literature is available to support these claims but in academic circles neuromarketing is beginning to find acceptance alongside neuroeconomics by exploring issues such as consumer trust, pricing, negotiation and marketing ethics with appropriate scientific rigour (Lee, Boderick & Chamberlain, 2007). But what has captivated the public and the media is elsewhere; the practical applications by private companies aiming to use these techniques for commercial gain. Companies like London-based NeuroSense promise to "objectively measure the effectiveness of advertising" (Richards, n.d.) while Brussels' Brain Impact claims to explore the "role of unconscious process" and eventually "influence those buying processes by adapting marketing tools" (Brain Impact, 2008). While academic enquiry and commercial applications can exist side by side (Butler, 2008) concerns have been raised regarding the practical and ethical implications of commercial neuromarketing.

'The key selling point of this methodology is the removal of 'subjective reporting' which might be obscured by cognitive bias or the ambiguity of language.'



Neuromarketing: detecting brain responses to various commercial products

Limited understanding

The first question that comes to mind when reading the promising statements of neuromarketing firms is: can they do it? Research has shown that it is possible to identify emotional patterns in the brain in response to visual and auditory stimuli (e.g. Adolphs, 2002). But the issue raised in neuromarketing is different, not only does it cover

'does this person like the product?' but also, 'will this person buy this product?'. By asking these questions we are probing a complex system that encompasses rational and emotional decisions. It is fair to say such extensive

interactions are not fully understood and any conclusion drawn from these have a large number of assumptions attached to them. Furthermore, the linking of all these processes with a behavioural action, in this case purchasing the product, are far removed with what can actually be identified in a neuroimaging laboratory. As Fugate (2007) argues, in order to legitimise this field of study it would be necessary to: a) identify which brain areas are involved in making a consumer decision, and; b) create a model of how these areas interact to make said decision. Neuromarketing has great potential but at this stage any finding

relating to complex issues, such as advertising effectiveness or brand perception, are tied to a long line of conditions and assumptions.

Ethical concerns

A topic that has been greatly explored by critics of neuromarketing is the potential ethical issues arising from modifying advertising and marketing to make the products more appealing (Wilson, Gaines & Hill, 2008). Concerns are raised regarding the potential to change the judgment of an individual to incline them to believe a product is necessary (Rotfeld, 2007). Others have raised the issue of more effective propaganda and political indoctrination, going as far as Commercial Alert, a non-profit organisation addressing the US Federal Office for Human Research Project regarding the possible breach of ethical guidelines by neuromarketers (Lancet Neurology, 2004). This debate, possibly fueled by similar technological ventures in fields such as genetics, is at present an overreaction, as such applications are far from possible at the moment, but as the Lancet suggests, these are important stepping stones for creating the base for legislation that may be necessary in the long run.

Public perception

A final debate point drawn from neuromarketing is the way it is portrayed and perceived outside the field of both academic and applied neuroscience. First is the issue of public perception: a study by Racine, Bar-Ilan and Illes (2006) found that press reports of neuroimaging are generally optimistic in tone, and if they do address issues

they are generally more technical or scientific rather than ethical. Second, is the issue of the client, usually a company interested in improving its marketing strategy, subjecting their product to the services of neuromarketers without a complete understanding of how the technology works. At this point it becomes easy to “dazzle potential clients with snazzy imaging technology” (Lancet Neurology, 2004). While companies may be drawn into inconclusive or misguided reports on their products it also becomes possible to deceive the client. One

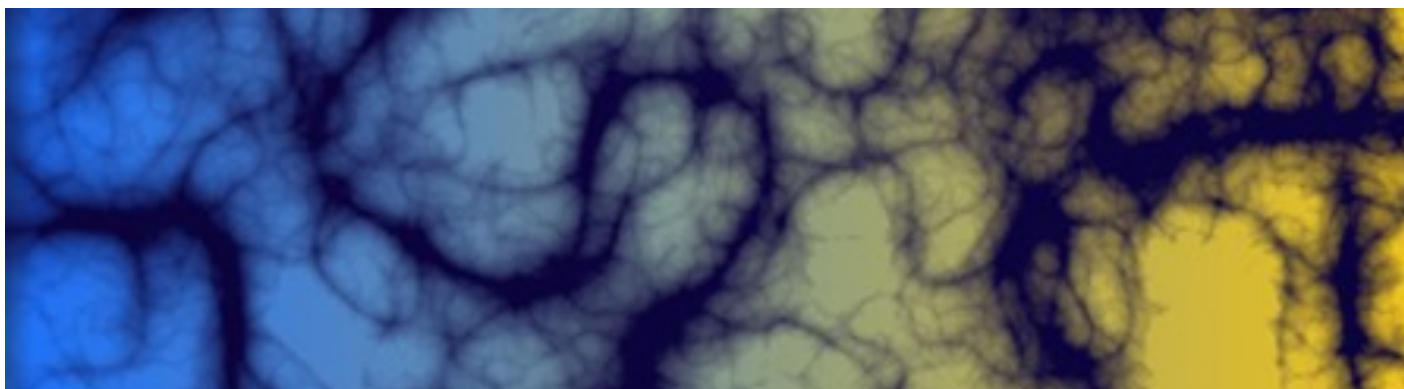
‘One US-based company suggest that measures of “percentage brain activation” are a measure of engagement with a televised commercial or film.’

US-based company suggests that measures of “percentage brain activation” are a measure of engagement with a televised commercial or film. While the study of particular brain regions may prove more illuminating, the total mass activation is not known to correlate with an appreciation of

a film, or indeed anything else. This pseudo-science profiteering approach is feasible due to the technical difficulty associated with neuroscience and positive public opinion.

For good or ill

Despite the controversy, neuromarketing is a rapidly growing field with many private companies being created every year with high profile clients such as Proctor & Gamble, Coca-Cola and Motorola relying on them for their marketing strategies. As is often the case with new applications for technologies, ethical and social issues arise. However, by assuring the coexistence of academic and applied research as well as evolving guidelines and legislation, this may well be the future of selling – in the buying brain.



Although Neuromarketing may be appealing to companies the assumptions it is based on may not be tenable

The Psychology of Magic

Cassie Barton

Science and magic are not two concepts you'd imagine sitting together easily – but psychological research into the workings of stage magic has been going on for some time now. Although the two disciplines have existed separately for years, it turns out psychologists and illusionists have a lot to learn from each other.

For example, a 2007 study by Kuhn (a magician and psychologist) and Land tracked participants' eye movements as they watched a magician apparently make a cigarette and lighter vanish into thin air. In fact, he'd simply dropped the items into his lap in plain view – but because participants were looking elsewhere at the key moments, to them it appeared that the items had vanished.

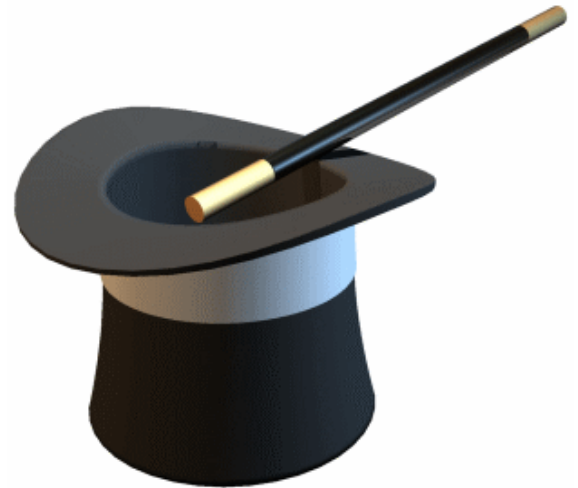
Researchers into attention are interested in why this happens. It seems to be down to a phenomenon known as 'change blindness', which happens because of the limited nature of human attention. It makes sense to impose a filter on all the useless information entering our senses, rather than processing everything before we decide what's relevant. So our small supply of attention is given to objects and events we're interested in - so much so that we often fail to notice seemingly obvious changes elsewhere. This is how films get

'It turns out psychologists and illusionists have a lot to learn from each other'

Magic: there is more to it than meets our eyes

away with continuity errors - you won't notice background changes unless you're the type who enjoys going through DVDs with the pause button for that purpose.

One well-known study (at least to anyone who's ever studied Psychology) demonstrated this by getting participants to watch a video of a basketball game and asking them to count the number of times the ball was passed (to see it for yourself the you can find the link in the references). The participants dutifully did so, most of them completely failing to notice a man in a gorilla suit cross the screen, waving. And even in real-world scenarios where you'd think people would be paying close attention, the same thing can happen. In a study by Simon and



Historically magic has taken advantage of 'change blindness'

Levin (1998), participants were approached in the street by an experimenter asking for directions. As the participant consulted the map, two more experimenters barged past, carrying a door; this allowed the first experimenter to switch places with another, so that the participant was now conversing with someone completely different. Incredibly, half of the sample didn't notice a thing.

In light of studies like these, it doesn't sound too difficult to make someone fail to notice a cigarette being thrown away. In Kuhn and Land's study, eye trackers revealed that participants concentrating on the magician fiddling with the cigarette simply weren't looking at his other hand as it got rid of the lighter – and what you're not looking at, you don't see. By now you're probably thinking that this kind of thing wouldn't fool you at all: you're far too smart and observant. If so, I'd highly recommend watching this card trick demonstrated at <http://tinyurl.com/2ee8j3> to see just how much can pass under our noses when we think we're paying attention!

There are plenty of ways to influence an audience's attention, and the use of social cueing is common. Basically, if you're watching someone you'll tend to pay attention to whatever he or she is looking at. Another useful strategy for real life – but one that's easily manipulated for illusion.

Another eye tracking experiment by Kuhn (2005) got participants to watch a magician throwing a ball in the air. For the first two throws, he simply kept his eye on the ball as he threw it in the air and caught it. The third throw was fake, and the ball was kept hidden in his hand. Now, when the magician kept his eyes on his hand for the fake throw, only 32% of observers were taken in and reported seeing the ball move for a third time. But when the magician looked in the air as if the ball was up there, the number rose to 68%.

Manipulating attention may be the foundation of any illusionist's work, but psychology is still



'Watch my hands': Magic often involves subtlety distracting people from the 'manipulation' at hand resulting in the seamless illusion of magic

'Psychology is still involved even after the show finishes'

involved even after the show finishes. Evidence suggests that people's recollections of such events can become severely exaggerated after the fact, particularly when sharing them with other people. One study looked at descriptions of the famous Indian rope trick, and sorted them into five categories based on how impressive and unbelievable the actions described were. Perhaps unsurprisingly, a significant correlation was found between the 'impressiveness' of the trick and the number of years since the witness claimed to have seen it happen. Of course, this escalation of false memories makes for brilliant publicity if you happen to be a stage magician.

Psychologists can learn a lot from the secrets of stage magic, and the reverse is also true – detailed study of how these tricks work just demonstrates to magicians how much they can get away with.

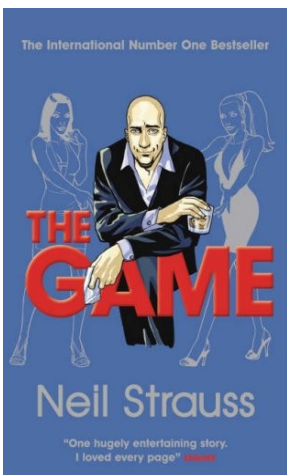


Pop Psychology refers to the culturally relevant aspects of psychology which serve to promote a healthier lifestyle and give people scientific insight into aspects of their everyday life.

Inside the mind of a pick up artist

Francina Clayton

Based on the book "The Game" by Neil Strauss.



The Game by Neil Strauss

Meet Neil Strauss, a 29-year-old writer who in his own words is "far from attractive" (Strauss, 2005). It may come as no surprise that Neil is not exactly a hit with the ladies. However in the space of two years spent amongst the "seduction community" this same man transforms himself from a romantically challenged shy-guy into the world's number one pick-up artist.

'In order to attract a 'target' you must become the social centre of the group'

nique plucked entirely from the minds of the seduction community or has Mr Strauss cleverly made millions from the interpretation of established psychological theory on attraction?

Step One: Become the social centre of the group

In order to attract a 'target' (yes, pick-up artists talk in terms of Top Gun) you must become the social centre of the group. Strauss learns that there are 6 characteristics of the "alpha male of the group" (or AMOG) (p.24): (i) confidence; (ii) a smile; (iii) being well-groomed, (iv) displaying a sense of humour, and; (v) having the ability to connect with people. Whilst the latter may be a little vague, from an evolutionary perspective it is plain to see that these are all highly desirable traits for a potential mate to possess.

In 2005, Strauss published his memoirs and the world was exposed to 'The Game'. Whilst there are countless self-improvement methods promising to help under-confident "nice-guys" meet and attract women (titles include 'Dating for Dummies' and 'How to Make Anyone Fall in Love with you') it was 'The Game' that earned a position on the New York Times Bestseller List and attracted attention from lonely boys worldwide.

As a psychology student, I had my doubts. I wondered, is this some new groundbreaking tech-

Tesser's Self-Evaluation Maintenance theory proposes that people strive to maintain or improve their own self-esteem and that this can be achieved through relationships with others (Tesser, 1995). The "reflection" process involves using the success or merits of another person to promote oneself through their own association or close relationship. Therefore, when someone is seen to be the centre of a social group, exuding confidence and appeal, others will aspire to be associated with them.



'Pick your targets wisely Maverick': Strauss uses Top Gun-esque terminology in his book

Step Two: "Neg" your target

Strauss assures that to intrigue the target, the use of a "neg" is essential. "Neither a compliment nor an insult" (p.23) a neg can be likened to a backhanded compliment, for example offering someone a piece of gum after they begin talking to you.

Although this may seem to counteract any feelings of attraction, "negging" your target may actually increase your chances. According to research, higher-status group members are more likely to criticise and command others in the group and are also more likely to interrupt others (Weisfeld & Weisfeld, 1984). So whilst "negging" may appear rude, it will add to your AMOG status.

Research by Berscheid and Walster (1974) indicates that feelings of passionate love may arise from being physiologically aroused in the presence of a particular individual and consequently labelling this experience as attraction toward this person. In light of this theory, the purpose of "negging" becomes a little clearer, undoubtedly being insulted by stranger in front of friends would infuriate the majority of us.

Providing support of this effect, later studies by White, Fishbein and Rutstein (1981) show that physiological arousal need not be positive in order to evoke feelings of attraction. Male subjects listened to one of three audiotapes; one control tape and two intended to elicit arousal, one through positive the other through negative imagery. The subjects then viewed a videotape of a potential partner and were required to rate their romantic attraction. Results found that romantic attraction was enhanced following exposure to either the evocative positive or negative tape relative to the control condition.

Step Three: Cold reading

As Strauss explains, cold reading is "telling people truisms about themselves without any prior knowledge of their personality or background" (p.28) and *supposedly* this technique works on Britney Spears. Similarly, Strauss encourages the reader to "elicit values" from the target, which involves finding out what is important to them and what motivates them (amusingly most examples given in his account involve money and fame). These two techniques encourage attraction through the use of simple classical conditioning. Complimenting someone or discussing their dreams and desires will no doubt leave them with a pleasant feeling and as a result this enjoyable feeling will become associated with that particular person. Tesser (1995) reports that a person can also be associated with a particular time or place, for example meeting someone whilst enjoying food in your favourite restaurant.



Remember: it's not self-help just because you brought a book

Step Four: The takeaway

As Strauss (2005) defines; "A pickup technique in which a man who has approached a woman and is getting along with her leaves, in order to demonstrate a lack of neediness and increase her attraction to him." (p.485). Strauss (2005) also suggests you should speak to a target over your shoulder thereby creating the impression that you may walk away at any minute. So what is it about this 'cat and string method' that appeals to women? Perhaps, as studies have shown we automatically perceive an opportunity as more worthwhile, the less available it is. Students at Florida State University initially rated the quality of cafeteria food poorly. However, after learning that the cafeteria was no longer open, ratings increased significantly despite no change in food quality (West, 1975). Additionally, our everyday experience often teaches us that those things that are more difficult to come by are

'Strauss also suggests you should speak to a target over your shoulder thereby creating the impression that you may walk away at any minute'

often of a higher quality in comparison to those that are quick and easy to possess (Lynn, 1992). Maybe the technique of playing hard-to-get has potential after all?

The verdict

Undoubtedly Strauss and his fellow seducers have successfully taken the psychology of attraction and impressively assimilated this ever growing body of knowledge to generate a worldwide bestseller in a format which clearly appeals to the target audience (no pun intended!).

So is this book guaranteed to turn any reader into a bona fide Casanova? Probably not. But for readers who value lessons 'The Game' can teach perhaps it does have the potential to provide the inhibited with new-found confidence... or at least with a few inventive opening lines.



Could 'The Game' offer salvation for nerds everywhere? Rumour has it our editor has already ordered a copy...



Welcome to the Psych Soc section, here you will find everything that is going on within the best society at York! From academic talks to the latest in a long line of nights out!!

PsychOut welcomes all Freshers!

Adele Goman

Here is your essential guide to getting the most from your first year as a Psychology Undergraduate straight from the people who have been there and got the t-shirt!

1. Join PsychSoc!

PsychSoc arranges various academic events, in the past these have included tours of YNiC, external speakers and debates with departmental staff and of course the infamous socials, Pub Golf and Cavemen are two of the favourites! For just £4 membership fee for the entire academic year, it is a great chance to get to know fellow psychology students. For more information email psychsoc@yusu.org.

2. Become a part of PsychOut!

We'd love to hear from you. Whether you are passionate about a specific area of psychology or have a general interest, PsychOut offers YOU the chance to write about anything psychology related.

3. Buy your course books from students!

A great chance to pick up a bargain! 2nd and 3rd years will be selling their used course books via emails. Normally these are at lower prices than book shops!!

Advice from current students:

"If you're planning on going into a psychology related profession start getting some work experience as soon as you can as there are lots of people looking for the same thing." - [3rd year](#)

"Make the most of the first year." – [2nd year](#)

"Don't leave all your work until the last minute!" – [2nd year](#)

"Get involved in societies and clubs – you meet loads of great people" – [3rd year](#)

"Have fun!" – [3rd year](#)

Meet the Staff

Welcome to the Staff Section where members of the Psychology Department are able to write about their previous, current and upcoming research projects within the department

I'm a scientist—get me out of here!

Tom Hartley



Tom Hartley (Picture: Cathy Hartley)

My first degree was in Life Sciences and alongside psychology it included modules on Genetics, Biological Diversity and Animal Cell Physiology and Neuromuscular Physiology. I think this broad biological base was important for my subsequent career; from the outset, I wondered whether

thinking about neurons and neurophysiology could help us understand some of the complex phenomena I encountered in my psychology modules.

In 1986, Rumelhart and McClelland had published their edited volumes on *Parallel Distributed Processing* which revived widespread interest in neural network modelling after a long period in the doldrums. While working as a health care assistant in a mental hospital, I spent some of the year after my graduation reading the PDP books and experimenting with models on my ATARI home computer.

In 1992, Churchland and Sejnowski published a key paper in *Science*, which spelled out how various neurophysiological, psychological and imaging techniques could be combined with modelling to investigate the inner workings of the mind – although I hadn't yet heard the phrase myself "cognitive neuroscience" had hit the big time and a quiet, biological revolution was taking place in psychology. Into this exciting and changing environment I arrived at UCL as a fresh-faced and enthusiastic PhD student (as you can see from my ID card). I used my new found modelling skills to develop a computational model of new word learning and phonological short term memory. Then, after a brief stint as a research assistant at the University of Wales,

Bangor, I went back to UCL to do several successive postdoctoral projects, culminating in a long term at the Institute of Cognitive Neuroscience, working on the neural basis of spatial cognition in Prof. Neil Burgess' lab. As the picture also hints, I emerged somewhat less fresh-faced in 2005, which is when I moved to York to become a lecturer. It's interesting to note, in retrospect, that my thesis written ten years earlier, had cited Gathercole, Quinlan, Baddeley, Hitch, Ellis, Snowling and Hulme.

At UCL I had been lucky to gain early experience with fMRI, for example helping to analyze an early study on visual motion in 1996. Probably my most important findings to date came from a study which was many months in the making. I modified a version of the videogame Quake, removing all the guns and monsters, and making simple (E-prime style) scripting possible. I created two different virtual towns and got participants to learn each town in a different way. In one town, participants explored freely for 15 minutes. In the other, they followed the same fixed path repeatedly for 15 minutes. Moving to the MRI scanner, we then asked participants to navigate between pairs of locations in each town while we acquired fMRI data continuously. Even though the navigation tasks were identical, brain activity differed according to whether the paths they took had been repeatedly followed in training.

The hippocampus, part of the brain which is critical for episodic memory, but also vital for spatial cognition, was more active in better navigators finding new direct routes after free exploration. The caudate nucleus, specialized for learning sequences of action which have previously been rewarded, was more active in good navigators following well-learned routes. I specu-

lated that this might provide a sort of "autopilot" function, which can take over from deliberative navigation when we acquire a new, habitual route. These findings were the first demonstration of these complementary spatial memory systems in humans.

My recent work has investigated the role of the human hippocampus in spatial memory, building on the idea that it provides a "cognitive map", which preserves information about the stable relative locations of objects and landmarks, regardless of our own current viewpoint. This idea comes from studies with rats showing that hippocampal neurons encode the animal's location with exquisite accuracy, yet independently of its current heading. If this type of representation extends to human memory then we might expect view-independent memory for places to be especially sensitive to hippocampal damage.

To investigate this I devised a memory test in which subjects are asked to recognize a previously studied place when seen from a different point of view (from amongst four alternatives). The stimuli are actually computer generated landscapes whose properties are carefully manipulated so that the task can only be achieved by memorizing the layout of the scene, and not other clues such as distinctive patches of vegetation, shadow or cloud. Patients with hippocampal damage were selectively impaired on this task. Excitingly, we recently found that scores on this test could

distinguish patients with early Alzheimer's Disease (AD) and Mild Cognitive Impairment (frequently a precursor of AD) from those with Fronto-temporal Dementia.



The many faces of man: Tom Hartley through the ages

My current work uses neuroimaging to investigate the role of view-invariance in healthy participants' spatial memory and in individual differences in memory function. In future work, with Dr Tim Andrews, I hope to shed new light on the organization of the parts of the visual cortex which contribute to spatial memory and cognition, especially parahippocampal cortex. We feel that there may be a "bigger picture" – a set of organizing principles – which may sometimes be obscured by the dominant "modular" view of vision as a set of specialized and unrelated components.

The opportunity to write this article for PsychOut comes at an interesting time for me. I've just spent a two-week stint as a contestant in I'm A Scientist, Get Me Out of Here. As the name suggests, I'm A Scientist is loosely based on a reality TV format, in which scientists from a variety of disciplines compete with one another to avoid "eviction". Here, though, the judges are school students from across the country. Through the website (<http://imascientist.org.uk>) they are able to pose questions and schedule online "chats" with scientists from a variety of disciplines. Students vote to decide which scientist is evicted until only one remains to win the coveted £500 prize.

All this might seem rather frivolous, but my experience was far more fulfilling and thought-provoking than you might expect. I was incredibly impressed by the energy and idealism of the students we were dealing with. The reality TV style voting and eviction, really excited their collective interest. Rather than seeing themselves as passive recipients of knowledge, the students put themselves in the role of judges, some no doubt seeing themselves as rather tougher versions of Simon Cowell dealing with the X-factor auditions. When teenage judges get stuck into jaded scientists, both sides are going to learn something.

I think we did a really good job of answering their questions honestly and thoughtfully. You can see my answers on the website, but please don't judge me too harshly – I answered well over 300 questions, writing something like 40000 words in two weeks. It was an exciting and intense experience. In online chats, students often did not want



An example of the 4-mountains stimulus task

to leave at the end of the session; not a typical reaction to a science lesson, I understand. I could see that my responses were making a difference and I was able to explain some core scientific principles (for example discussing validity and reliability) and some exciting and current findings (for example, describing a very recent fMRI study which decoded brain activity in visual cortex to create a movie of the participant's visual experience).

But what surprised me most was the effect that the exercise was having on me. I was being forced to think much more broadly about my role as a researcher: how *would* my research benefit society? Why *did* I think science was so interesting? What kind of science did I like

to do, and *why*? This sort of question, and especially the fact that I would have to explain my answers to an energetic, enthusiastic but challenging and idealistic audience, forced me to reflect more deeply on my aims and personal "philosophy" than I had been able to do since beginning my PhD in 1992. I discovered that I really cared, not just about my own research, but about science in general. And I found that I wanted to share this rediscovered passion – for a formerly dispassionate cognitive neuroscientist it is a heady but very positive new sensation.

I'm A Scientist is funded by the Wellcome Trust. Tom Hartley finished second to Prof. Stephen Curry, the 'Ginger Ninja' of Structural Biology. You can retrace his steps through his blog at tomhartley.posterous.com.

How to survive a PhD

Shane Lindsay



Wise words of advice from Dr. Lindsay

For those embroiled in a PhD I will share with you three indispensable nuggets of advice for how to get the monster vanquished: use hard deadlines, soft deadlines, and the Martini Method. With a small amount of imagination these principles can be applied to any large project.

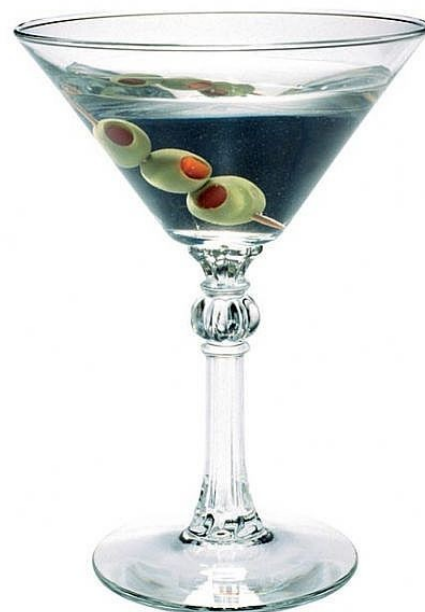
Perhaps the most important determiner of when a PhD gets finished is the **hard deadline**. While hard deadlines are supremely important, the advice to have one is somewhat futile, since they are typically beyond your control. The main hard deadline for PhD is that which your institution has determined as your maximum amount of time allowable for its completion. At my previous University this was four years. And without fail, graduate students would be frantically printing their thesis the day before this deadline for binding and submission. Other constraining deadlines are when your money runs out, or the start of a new job. While these aren't quite as final as the ultimate deadline, life can be made considerably difficult if you are left with writing your PhD when starting a new job, or when you cannot afford to pay your rent. As any normal human being knows, deadlines are important for many reasons. One of which is Parkinson's Law: which stipulates that the time you take to complete

'While hard deadlines are supremely important, the advice to have one is somewhat futile, since they are typically beyond your control.'

a task is heavily influenced by the time you have to complete that task.

Deadlines which you have more control over are **soft deadlines**. One advantage over hard deadlines is that you can choose how many of them and when they occur. The disadvantage is that the consequences of failing to meet them are usually not severe, and can sometimes be safely ignored. One solution to their softness is to create real consequences. The method of doing this will depend on your personality, and whether you are best driven by the carrot or the stick. Perhaps the most common method in a PhD is externalisation of the deadlines by forming a verbal contract with your supervisor. Many supervisors will set deadlines to their students, but if you do not have a supervisor that does this I would urge you to engage them in setting you soft deadlines. I had an arrangement in the later stages of writing up my thesis to have a piece of work for my advisor to read every week or second week, which helped immensely. You may not like these deadlines, but I

believe they are essential, following Parkinson's law, amongst other reasons.



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Shaken but not deterred: the 'Martini Method' is a good way to deal with your workload

What I call the **Martini Method** is named after an anecdote I once read about the novelist Anthony Burgess (of Clockwork Orange fame). Burgess was a very productive writer, which was attributed to a system where he would force himself to write a 1000 words a day, 365 days a year, without fail. When he had completed his daily toll, he would relax with a dry martini in a bar, and enjoy the rest of the day with an easy conscience. A friend of mine's version of the Martini Method was to come into the office every day, and not allow herself to leave until her word count target had been reached. Most days she left before 5pm, though on occasion she would stay as late as 6 or 7. She would also set herself mini Martinis, such as allowing an ice cream in the summer once she had hit half her daily word count. Though we started at the same time, she finished her PhD a lot earlier than me!

'What I used to do was to start the day with the editing of the text written on the previous day'

The Martini Method is just another word for a carrot, which personality psychologists have generally found to be more effective than the stick. One thousand words is an arbitrary number, and you might find it too much or too little, but I think that somewhere between 500-1000 words to be optimal. Writing 1000 words a day doesn't take into reviewing and editing time. What I used to do was to start the day with the editing of the text written on the previous day. This makes for an easier way to get started, as editing existing text is less cognitively daunting than starting afresh, and warms up the mind for the writing to come.

So find your own personal Martini coupled with completion of your daily goals, fear your soft deadlines and your hard deadlines even more, and your PhD could be finished in the time it takes to

If you are a postgraduate student and would like to get involved with PsychOut then please email us at:

psychout@yusu.org for more information!

Editors Note: This is a reminder that references for all of the articles are available online at:

<http://www.york.ac.uk/depts/psych/psychsoc>



Would you like to know more about our staff in Psychology Department than their e-mail address and psychology field? If yes, then become a regular reader of our interview section! In each issue, we will interview a guest who will tell us about their attitude towards psychology, current research and provide students with success tips.

Mapping the visual field: an interview with Tony Morland

Recent developments in fMRI scanning have led to a surge in brain mapping for structure and functioning. Rosalind Baker interviews Tony Morland, one of our lecturers who researches impairments in the visual field in the York Neuroimaging Centre (YNiC) on campus at York University.

What are you researching at the moment?

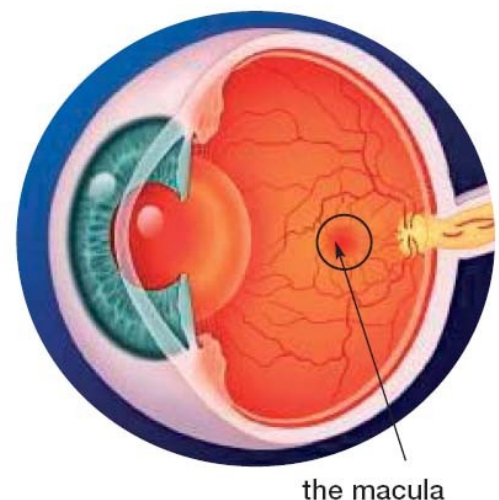
I am looking at age-related macular degeneration (AMD), which is the leading cause of blindness. 30 million people in the US and Europe suffer from this condition. The macula is the centre of the retina, at the back of the eye, where the image is focussed, and is responsible for what we see straight ahead, and is useful in reading and writing. For people who are 80+, 1 in 10 will be affected.

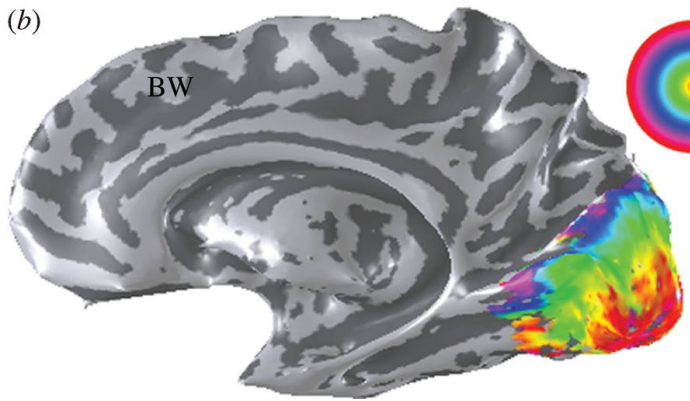
How does this relate to Psychology?

Well, we look at gaps in the visual field and how this corresponds to brain activity by functional magnetic resonance imaging (fMRI) scans. fMRI scans build a picture of neural activity in the brain by measuring the changes in blood flow. There is a map of the visual field on the surface of the cortex at the back of the brain. You (current second-years) didn't get the lecture on this in your first term, but the new freshers will get a look at this in further detail.

So how it is mapped out on the surface of the cortex?

You know that the information from the right eye is processed by the left-hand side of the brain, and vice-versa. The central vision is processed right at the back of the occipital lobe, and peripheral vision is processed further forward.





The right-hand side of the brain, (person is looking left). The semicircle represents the field of vision from the left eye. You can see that the peripheral vision is processed further to the front of the brain (blue colour) and the central vision is processed right at the back of the brain (red colour.)

So what I see here (waves hand to the left of her face) is processed here (points to back right-hand side of brain)?

Yes, exactly.

So what causes blindness?

At the moment it's an unresolved issue – we think it originates in the eye, but maybe the brain is damaged too? The other interesting issue is what happens when someone has lost some of the visual field - all the space that would be used to analyse this is unused. What happens when this area is up for grabs? Does it get used for a different purpose? Hubel and Wiesel won the Nobel prize for Physiology or Medicine in 1981 for their work on pinpointing 'simple' and 'complex' neurons. Simple cells respond differently to light patterns than dark patterns, and complex cells detected movement and edges, independent of where they were placed in relation to the stimulus.

Oh, I think I looked at them in A level – weren't they the people who deprived kittens of visual input, and then found that as cats they couldn't see certain things? For instance, if they were in an environment where there were no horizontal lines, the cats then would not see any horizontal lines later in life?

Yes, that's right (laughs). Their work has shown that environmental input affects the development of connections in the brain, which lasts throughout life. This has helped treat childhood cataracts.

There are different kinds of blindness, aren't there? I read Oliver Sacks' 'The Man Who Mistook His Wife For A Hat' and found it fascinating (a collection of case studies, much recommended.) Mr P. had prosopagnosia – an inability to recognise faces. Have you ever come across this disorder?

Yes, I have met a patient who also has prosopagnosia. We showed him a picture of Buddy Holly - this was a while ago! – and asked him to identify the photo. The patient knew who he was - said he was a singer who died in a plane crash - but just couldn't recall his name.

Wow, I bet that's annoying. How did research in the role of the brain in these types of blindness come about? Were they mostly case studies, like these two people with prosopagnosia?

Case studies are a big part of it, as these disorders are rare. A high velocity rifle was developed in 1980, where the speed of the bullet was fast enough to penetrate the brain but not too fast to completely scramble the brain when leaving the other side. Therefore the brain had a small lesion. This bullet was known as the 'goldilocks' bullet, as it was not too fast or too slow, but just right! These rifles were used during WWI and many cases of brain lesions appeared, meaning many more case studies all in the same place. Gordon Holmes went to the trenches and, using a technique called point-to-point mapping, plotted which parts of the brain are involved in visual processing.



Buddy Holly: gone but not forgotten for a patient with prosopagnosia

So a lesion in one area of the brain meant that one part of the visual field was disrupted, and a lesion in another meant another part was disrupted...

Yep, that's it. Holmes needed lots of people with lesions in order to carry out this mapping – however we can do it today using MRI scans to create a map of an individual's brain.

How do you do that?

We use transcranial magnetic stimulation (TMS), which selectively disrupts a visual area by 'tickling' the neurons. For example, when V3a (a visual area in the occipital lobe) is tickled, motion seems slower.

In our Introduction to Psychology lectures we saw a case study of a German woman who couldn't see motion at all (akinetopsia – which is also mentioned in episode 7, series 3 of House) – was this due to the V3a malfunctioning?

Possibly – the problem there is that many of her visual areas were affected, so no clear-cut conclusion can be drawn. It's still unclear how the visual areas work together.

Thanks a lot for your time – I just have one last question. What would you advise students who are interested in working in YNiC or research in vision do to further their interests or gain experience?

I would say to read around the subject, and get in contact with Tim Andrews or myself about being a research assistant. We don't necessarily advertise positions so you will have to come to us to ask. And be persistent! We may forget to reply to emails, so keep pestering us.



Tony Morland (right) working at the York Neuroimaging Centre (YNiC)



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