

Module: Psychological Foundations of Mental Health

Week 3

Introduction to emotion and emotional processing

Topic 1

Nature of emotion – Part 3 of 3

Dr Tom Barry

Department of Psychology, King's College London

Dr Jennifer Lau

Department of Psychology, King's College London

Lecture transcript

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Now that we have discussed what emotions are, or rather, what components of emotions there are and why they are needed, we will discuss how we study the emotional experience in the lab. This is important, because in the next topic, we will consider how emotional stimuli or events or feeling emotional can affect cognitive processing.

So how can we provoke, generate emotions in the lab? Perhaps the simplest way is to provide people with stimuli that might provoke an emotional response. Basic stimuli, such as faces wearing different negative emotions, for example, fear or anger, have been used in many studies and are known to activate responses in brain regions involved in the detection of emotions and the sympathetic nervous system.

Presenting these can therefore be used to measure neural and physiological aspects of emotion. These stimuli have the advantage in that facial expressions are universally recognised, as we discussed earlier, and so can be applicable across individuals. Interestingly, these facial expressions carry such emotional significance that even when presented briefly and masked by a neutral face, they are capable of activating relevant emotional brain circuits.

Yet, there are also criticisms of these stimuli. Some have argued that they are too mild to elicit a subjective response that is commensurate with most emotional responses that we feel. One improvement is to present a pair of eyes conveying the emotion. And a standardised set of eyes showing different emotions do exist for research purposes. This is called the eyes test, a test of emotion recognition.

Arguably, such expressions are thought to generate stronger emotional expressions. And in fact, one famous study found that a picture of a pair of eyes in the corner of an office kitchen led more people to put money into the kitty for buying coffee and tea.

But nonetheless, even a pair of eyes is not that realistic. How often are we confronted with just a pair of eyes? Moreover, they do not elicit strong emotions. A pair of eyes suggestive of happiness might generate a feeling of mild pleasantness in some people, but would not be expected to generate actual contentment, elation, or excitement, such as those experienced in everyday life. It is because

the emotion presented either on the face or a pair of eyes is removed from a wider sociocultural context, in which many of our richest emotional experiences occur.

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How can we generate emotional responses that are more realistic? One method is to embed the negative or positive stimulus in everyday contexts that we know generally generate emotional responses. So studies focusing on positive emotional responses have used monetary reward tasks, where participants win money based on their performance on a task.

A well-known reward task is called the monetary incentive delay task, where on particular reward trials, cued by a particular geometric shape, if individuals respond quick enough after a variable interval, they win a specified amount of money. Such simple tasks can also activate brain regions that appear to be conserved for responding and anticipating rewards.

While winning money is one way of generating positive emotions, there are other creative methods, for example, giving people chocolate while presenting pictures of chocolate. Again, these simulations of more real life positive emotions can activate the brain's reward systems and enable us to study positive emotions in a more realistic way.

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What about negative emotions? How can we embed these in common, everyday events? A bit more care needs to be given to designing such studies for ethical reasons. We do not want to provoke any negative emotions that are likely to be long lasting after the end of the experiment.

My group has been interested in studying teenagers' emotional responses. And we all knew that teenagers could be cynical participants, so we needed something very salient than just faces to activate their emotions. Now, we also knew that peer feedback is very important for many teenagers. So together with collaborators in the US, we developed a paradigm called the chat room task, where teenagers were told that they would be chatting to other young people over the internet.

They were then shown a series of pictures of these supposed other young people and were asked to rate how much they wanted to talk to each person. They were told that their photo was also being rated by other young people. Then, while they were lying in the MRI scanner, they received either rejecting or accepting feedback from each person in the photos they had seen.

Using this method, we were able to measure both subjective responses towards peer rejection and peer acceptance, so the negative and positive emotions of teenagers, respectively, but also the correlated brain responses too. Unlike simple face emotions, these more complex social stimuli were far more emotionally provocative, particularly at the subjective rating level.

Of course, such experiments need to be conducted only after a very in-depth consideration of ethical issues and approval by an ethics committee. In this case, all the photos and the feedback that the participants received were not real. The photos were of child actors and the feedback computer generated.

All young people were, of course, fully debriefed. And we did not invite participants we knew to be particularly vulnerable, such as those who were suicidal, to this kind of study. We also had a clinician check that the young person was feeling OK before leaving the lab.

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While the chat room task is more realistic to everyday life than presenting faces and eyes, it has still been criticised for not being very believable and, again, somewhat more removed from everyday situations. Another method that addresses this is to get participants to keep real life diaries of events that they experience and then to rate their emotional response to it.

Presumably, such a method is more realistic, because the participants themselves have selected emotionally salient events. However, there are still problems with these methods. Because the events that the participants choose are not the same, some may actually experience objectively more serious events than others, and so a higher rating could be reflective of the objective characteristics of the event, rather than the emotional response of the participants.

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So far, we have talked about methods that involve presenting emotionally provocative stimuli to try and capture emotional responses. Another method that is very different is to try and change people's mood state. This is called mood induction and can be done in a variety of ways experimentally, but also pharmacologically. But we will only cover the first of these in this section. In fact, we are now going to get you to try this yourselves.

[MUSIC PLAYING]

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We hope that you are now in a pretty good mood and that this was reflected in your ratings before and after the induction. But if we did this in the lab and found this pattern of results across participants, we can never be sure that any change in positive mood is not a demand effect. That is, participants may only be responding in such a way as they think the experimenter wants them to. So it would be useful to demonstrate that there is a transfer of the positive mood effects to other measures.

Wright and Bower found evidence that after positive mood induction, participants report higher probabilities for positive events and lower probabilities for negative events, while those who received negative mood induction showed the opposite pattern. Then, finally, those who had neutral mood inductions showed no difference between positive and negative events.

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In summary, we have covered what emotions are, why they are needed, and how we can study emotional responses in the lab. In the next topic, we will be discussing how emotions can impact our cognitive processing, the processing of events in the environment.