SL IB Psychology

Thinking & Decision Making

Contents

Rational Thinking & Intuitive Thinking: The Dual Process Model

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What is the Dual Process Model?

- The **Dual Process Model (DPM)** is a **conceptual framework** in which the process of **thinking and decision-making** is presented
- Decision-making cannot be reached without someone first having thought through the relative options available hence the two are inextricably linked
- **Wason & Evans** first proposed the **DPM** in **1975** as a way of highlighting the idea that human beings utilise two different systems of thinking: one is '**fast**' - **intuitive** thinking known as **System 1 (S1)** and the other is '**slow**' - **rational** thinking known as **System 2 (S2)**

S1 - System 1

- S1 thinking happens on an **automatic** level, requiring little effort or time; it is prone to **bias** and heuristics which can result in mistakes, errors and inaccuracies
- S1 is not a 'bad' way of thinking as it saves time and energy, is based to a large part on **instinctive responses** which may be crucial in situations where split-second responses are required, and is **holistic** i.e. it uses **past experiences** and learning to enable the decision to be made
- S1 is best used for decisions such as choosing which pizza topping to have, crossing a road quickly to avoid oncoming traffic and it can be seen in the behaviour of an experienced driver who goes into '**automatic mode**' when driving i.e. they don't have to focus on the actual process of driving

S2 - System 2

- S2 is slower, effortful and **analytical**, is only used by humans as it involves **higher-order information processing** and is more likely to mean that decisions reached and problems solved are accurate and reliable
- S2 is not the 'best' way of thinking as it uses a lot of **cognitive** energy (which human beings do not enjoy as we are cognitive misers) and for the majority of day-to-day decisions it is unnecessary
- S2 is best used for decisions such as buying a house, preparing for a job interview and it can be seen in the behaviour of a learner driver who needs to concentrate on the actual process of driving as it has not become automatic for them yet

Both systems interact and work together: at times S2 may override S1 if circumstances dictate that this is the best course of action (though this is not true for all people and all situations, it will largely depend on the **variables** at play in each situation)

Which research studies investigate the DPM?

- **Alter et al. (2007)** – the use of disfluent font linked to S2 thinking in participants
- **Lerner & Ma-Kellams (2016)** – empathy linked to S2 thinking

Alter et al. (2007) and Lerner & Mal-Kellams (2016) are available as separate Key Studies – just navigate the Cognitive Processing section of this topic to find it (Two Key Studies of Thinking & Decision-Making)

Evaluation of the Dual Process Model

Strengths

- The model provides a compelling explanation of 'thinking fast and slow' which is easily **applicable** to a range of situations i.e it has good **validity**
- The model could be used to improve decision making in key environments such as business, education, policy-making etc.

Weaknesses

- The model is good at explaining what may be at the root of thinking and decision-making but it is not so good at explaining how S1 and S2 work
- Trying to **operationalise** both S1 and S2 thinking is difficult which means that research in this field is not entirely conclusive as to which system is being used during the set tasks

Two Key Studies on Thinking & Decision-Making: Alter et al. (2007) & Lerner & Ma-Kellams (2016)

Key Study: Alter et al. (2007)

Aim: To investigate the **Dual Process Model** via the effect of **disfluency** (**operationalised** using a difficult-to-read font) on S1 and S2 thinking

Participants: 40 undergraduate students from Princeton University in the USA, obtained via **self-selecting (volunteer) sampling**

Procedure: This was an **independent measures design** in which participants were given identical **Cognitive Reflection Tests (CRT)** to answer. The CRT comprised questions that were not inherently difficult, but which required some cognitive energy to solve e.g. *A bat and a ball together cost $1.10. The bat costs $1 more than the ball. How much does each cost separately? The answer is that the bat costs $1.05 and the ball costs 5 cents but most people are likely to say that the bat costs $1 and the ball costs 10 cents as this is the quickest, easiest answer (even though it is incorrect) requiring no cognitive effort. To come up with the correct answer is not difficult but it requires mental effort and time to properly think it through*

The participants were **randomly allocated** to one of two conditions:

- The CRT questions presented in a **fluent** (easy-to-read) font (black, 12-point)
- The CRT questions presented in a **disfluent** (difficult-to-read) font (grey, italic, 10-point)

It was **hypothesised** that the disfluent font would require the participants to concentrate more on what was written which would then trigger S2 thinking which requires **deeper processing** than S1. The **dependent variable** was measured as the number of correct responses per condition

Results: Participants in the disfluent condition answered more CRT questions correctly than participants in the fluent condition.

Conclusion: The hypothesis was supported thus it appears that having to concentrate on a disfluent font may trigger S2 thinking as it requires more cognitive energy and effort than a fluent font requires

Evaluation of Alter et al. (2007)

Strengths

- Using CRT questions was a suitable means by which to test the DPM, as to answer them correctly requires S2 thinking over S1 thinking, which is what the study aimed to investigate, increasing **internal validity**
- The DV was measured **quantitatively** which means that the results are easy to compare and **analyse statistically**

Limitations

- The sample comprised students from an elite, prestigious university in the USA, making the results difficult to **generalise** to other populations
- It is possible that the participants were affected by **demand characteristics** e.g. they may have tried to answer the questions with more (or less) effort than they would normally expend in real life

Key terms:

- **Dual Process Model**
- **Cognitive Reflection Test**
- **Disfluency**

Key Study: Lerner & Mal-Kellams (2016)

Aim: To investigate empathy as a product of either S1 or S2 thinking as part of the DPM.

Participants: A self-selecting sample that consisted of participants from several executive-education programmes at Harvard University (designed for senior-level professionals) in Cambridge, USA. The sample consisted of 72 participants (47 male, 32 female; mean age = 47; 72% European American, 14% African American, 6% Asian, 4% Latin American, and 4% other).

Procedure: The participants were randomly paired and assigned to the role of either the interviewer or interviewee. Interviewers were instructed to ask their interviewee a scripted set of three typical interview questions (e.g. "What is your greatest strength and weakness?"). Pairs were given three minutes to complete the mock interview. Next, participants completed two separate Positive and Negative Emotion Schedules, one assessing their own emotions during the interview and one assessing what they perceived their partner's emotions to be during the interview.

Participants rated how they felt, as well as how they thought their partners felt, on 20 different mood items (e.g. interested, distressed, proud, nervous) on a scale ranging from 1 (not at all) to 5 (extremely). In addition, participants completed three CRT questions.

Results: The participants who scored highest on the CRT (identified as S2 thinkers) were also more accurate in terms of their empathy i.e. how they rated and responded to the mood of their partner in the mock interview.

Conclusion: S2 thinkers may be more empathic than S1 thinkers.

Evaluation of Lerner & Ma-Kellams (2016)

Strengths

- This is an interesting way to assess the DPM with its use of research triangulation and its emphasis on **behavioural variables** such as mood: to some extent this increases the **ecological validity** of the findings
- The participants were of a similar **intellectual** level which means that **participant variables** should not have impacted the study

Limitations

- Empathy is a complex, multi-layered **trait** which cannot easily be quantified using a **rating scale**
- It is possible that some of the participants may have disliked their randomly allocated partner which would naturally lower their empathy towards them

Key terms:

- **Empathy**
- **Rating scale**
- **Research triangulation**