Exam PSY2300, v19

Bokmål versjon

Bare tre (3) av de følgende fire (4) spørsmål skal besvares. Hold svarene korte! Svarene kan avgis på norsk, engelsk, svensk eller dansk.

Spørsmål 1 – Persepsjon: (a) Hva er forskjellen mellom sansing ("sensation") og persepsjon? (b) Hvordan oppfatter du en "kopp" i henhold til "Recognition by Components" -modellen (Biederman, 1987). Diskuter kort modellens fordeler og svakheter. (c) Forklar hva multisensorisk integrasjon er og beskriv et empirisk fenomen som demonstrerer det.

Spørsmål 2 – Oppmerksomhet: (a) Kontinuitetsfeil i filmer (ulogiske endringer mellom to påfølgende scener) går ofte ubemerket hen. Hva kalles dette fenomenet i kognitiv psykologi? Beskriv fenomenet på en generell måte og foreslå hvordan det kan studeres i et eksperiment. (b) Beskriv «(Perceptual) Load Theory» (Lavie, 2005) og bruk den til å forklare det ovennevnte fenomenet. (c) Ved hjelp av Lavies teori, hvordan kan en filmregissør redusere sannsynligheten for at seerne opplever kontinuitetsfeil?

Spørsmål 3 – Arbeidsminne: (a) Nevn og beskriv kort de fire (4) hovedkomponentene i Baddeleys arbeidsminnemodell. (b) Hvordan ville disse komponentene interagere under følgende oppgave: Skriv inn et telefonnummer som du fant på en nettside, på telefonen din? (c) Ville det være mer forstyrrende å høre på instrumentell musikk eller en lydbok under denne oppgaven? Beskriv kort hvorfor.

Spørsmål 4 – Læring: (a) Beskriv bearbeidingsgradsteori (engelsk: "level of processing theory") foreslått av Craik & Tulving og lag et eksperiment for å teste teorien empirisk. (b) Hva er «spacing effect»? Beskriv et eksperiment for å vise effekten. (c) Hvorfor vet ikke de fleste personer hva bankkortnummeret sitt er, selv om de ser nummeret hver gang de betaler med det? Diskuter med hensyn til «level of processing» og «spacing effects».

English version

Only three (3) of the following four (4) questions have to be answered. Keep the answers brief! The answers can be given in English, Norwegian, Swedish, or Danish.

Question 1 – Perception. (a) What is the difference between sensation and perception? (b) How do you perceive a "cup" according to the "Recognition by Components" model (Biederman, 1987)? Briefly discuss advantages and weaknesses of the model. (c) Explain what multisensory integration means and describe an empirical phenomenon that demonstrates it.

Question 2 – Attention. (a) Continuity mistakes in movies (illogical changes between two consecutive scenes) often go unnoticed. What is this phenomenon called in cognitive psychology? Describe the phenomenon in general terms and suggest how it can be studied in an experiment. (b) Describe the (Perceptual) Load Theory (Lavie, 2005) and use it to explain the above phenomenon. (c) Using Lavie's theory, how can a film director reduce the likelihood that viewers notice continuity mistakes?

Question 3 – Working memory. (a) Name and briefly describe the four (4) major components of Baddeley's working-memory model? (b) How would these components interact during the following task: typing a telephone number you found on a webpage, into your phone? (c) During this task, would it be more interfering to listen to instrumental music or an audiobook? Briefly describe why.

Question 4 – Learning. (a) Outline the "level of processing theory" suggested by Craik & Tulving and describe an experiment to test the theory empirically. (b) What is the "spacing effect" for learning material? Describe an experiment to show the effect. (c) Why do most people not know their debit card number although seeing the number each time they pay with it? Discuss considering level of processing and spacing effects.

Nynorsk versjon.

Berre tre (3) av dei følgjande fire (4) spørsmål skal svarast på. Hald svara korte! Svara kan avgis på norsk, engelsk, svensk eller dansk.

Spørsmål 1 – Persepsjon: (a) Kva er skilnaden mellom sansing ("sensation") og persepsjon? (b) Korleis oppfattar du ein "kopp" i samsvar med "Recognition by Components" -modellen (Biederman, 1987). Diskuter kort modellens fordelar og svakheiter. (c) Forklar kva multisensorisk integrasjon er og beskriv eit empirisk fenomen som demonstrerer det.

Spørsmål 2 – Merksemd: (a) Kontinuitetsfeil i filmar (ulogiske endringar mellom to påfølgjande scener) går ofte umerkande hen. Kva vert dette fenomenet kalla i kognitiv psykologi? Beskriv fenomenet på ein generell måte og foreslå korleis det kan studerast i eit eksperiment. (b) Beskriv «(Perceptual) Load Theory» (Lavie, 2005) og bruk han til å forklare det ovannemnde fenomenet. (c) Ved hjelp av Lavies teori, korleis kan ein filmregissør redusere sannsynlegheit for at sjåarane opplever kontinuitetsfeil?

Spørsmål 3 – Arbeidsminne: (a) Nemn og beskriv kort dei fire (4) hovudkomponentane i Baddeleys arbeidsminnemodell. (b) Korleis ville dissa komponentane interagere under følgjande oppgåve: Skriv inn eit telefonnummer som du fann på ei nettside, på telefonen din? (c) Ville det vere meir forstyrrande å høyra på instrumentell musikk eller ei lydbok under denne oppgåva? Beskriv kort kvifor.

Spørsmål 4 – Læring: (a) Beskriv tilarbeidingsgradsteori (engelsk: "level of processing theory") foreslått av Craik & Tulving og lag eit eksperiment for å teste teorien empirisk. (b) Kva er «spacing effect»? Beskriv eit eksperiment for å vise effekten. (c) Kvifor veit ikkje dei fleste personar kva bankkortnummeret sitt er, sjølv om dei ser nummeret kvar gong dei betalar med det? Diskuter med omsyn til «level of processing» og «spacing effects».

Exam PSY2300, v19, grading instructions

The grading instructions are formulated for graders with a background in cognitive psychology. Accordingly, the instructions only highlight the key aspects, which should be discussed in an ideal answer to the given question. The provided instruction should not be seen as example of ideal answers to the questions.

1. General grading instruction

Only 3 of 4 questions listed below had to be answered. Each question gives max. 5 points so that the total exam yields a maximum of 15 points. The instructions below provides guidelines for awarding points by subquestion. Maximal points per sub-question are indicated in brackets (see *Key points to be addressed in answer).* However, should an answer in one subquestion be particularly well formulated it might be used to compensate a "point loss" in another subquestion within the *same* question. Likewise, penalization is possible (i.e., for unstructured writing, or extensively long answers which are not to the point).

Points-to-grade conversion: 5 points (33%) will be the "pass threshold" and grades should accordingly be assigned as:

0-4.99 pts = F,

5-6.99 pts = E,

7-8.99 pts = D,

9-11.99 pts = C,

12-13.99 pts = B,

14-15.00 pts = A.

Cautious note: Please contact me (rene.westerhausen@psykologi.uio.no) if you have any questions or notice any irregularities during grading. For example, in the past it has occurred that one question was too difficult, i.e. no candidate got 5 points in this question. In this case, as all the questions should be of approximately the same difficulty, the grading was adjusted accordingly (i.e., the question was weighted when summing up the total score). Also, I encourage to use an excel table to track the points per question across all candidates. If you do

so, please feel free to share it with me after grading so that I can assess difficulty of the questions and systematic inter-grader differences etc to be able to improve the objectivity of the instruction.

References:

- All questions refer to the textbook Gilhooly, K., Lyddy, F. and Pollick, F. (2014). *Cognitive Psychology*. London: McGraw Hill. ISBN13-9780077122669;

2. Questions and key points

2.1 Question 1

- **Perception**. (a) What is the difference between sensation and perception? (b) How do you perceive a “cup” according to the "Recognition by Components" model (Biederman, 1987)? Briefly discuss advantages and weaknesses of the model. (c) Explain what multisensory integration means and describe an empirical phenomenon that demonstrates it.

Key points to be addressed in answer:

(a) Sensation: conversion of physical properties in environment into neuronal signal (by receptors); perception: the “mental” experience of this sensation **[1p]**;

(b) The recognition-by-components (Biederman, 1987) model assumes that any three-dimensional object can be generally described according to its parts and the spatial relations among those parts. The model proposes that Geons, a set of 24 geometrical three-dimensional shapes, such as cylinders and cones, can be used to represent just about any object (pages 55-56) (1p); model proposes a possible method for recognizing three-dimensional objects across variations in viewpoint or exemplars. Problem: Cannot explain the recognition of objects that are made of similar geons and have small differences in spatial relations from each other, like faces (1.5p). **[max 2.5 p]**

(c) msi: Combination of information within and across senses to make a coherent whole perception that is more than each (0.5p). McGruk or ventriloquist effect can serve as example here, others possible (see page 50) (1p) **[max 1.5 p]**

2.2 Question 2

- ***Attention.*** (a) Continuity mistakes in movies (illogical changes between two consecutive scenes) often go unnoticed. What is this phenomenon called in cognitive psychology? Describe the phenomenon in general terms and suggest how it can be studied in an experiment. (b) Describe the (Perceptual) Load Theory (Lavie, 2005) and use it to explain the above phenomenon. (c) Using Lavie's theory, how can a film director reduce the likelihood that viewers notice continuity mistakes?

Key points to be addressed in answer:

(a) change blindness = the failure to detect changes in the physical aspects of a scene due to not attending the changes (1p); Any good conceptualisation of an experiment, e.g., following the classical experiment by Rensink et al (1997) (1p) (textbook p.96) **[max 2p]**

(b) Lavie's "load theory", basic idea: the amount of processing of unattended stimuli depends on the difficulty of the processing of the attended stimuli (i.e. "load"; p.81) – correctly relating the theory to "early" vs "late" attentional selection can be seen as bonus (1p). Thus, "change blindness" occurs since the processing of the attended stimulus is so demanding that the likelihood of detecting the irrelevant stimulus is reduced (1p); **[max 2p]**

(c) any good argumentation, should include sth like "make sure that the focus of attention is overloaded with important information, i.e. demands attentional reources; should be argued on an theoretical level not just by examples (1p). **[max 1p]**

2.3 Question 3

- ***Working memory***: (a) Name and briefly describe the four (4) major components of Baddeley's working-memory model? (b) How would these components interact during the following task: typing a telephone number, you found on a webpage, into your phone? (c) During this task, would it be more interfering to listen to instrumental music or an audiobook? Briefly describe why.

Key points to be addressed in answer:

(a) Phonological loop, episodic buffer, visual spatial sketchpad, central executive + brief explanation for each in accordance textbook (each 0.5p; see page 124-128) **[max 2 points]**

(b) the phonological loop component (i.e., articulatory control processes) would *convert* the visual information (from *visuo-spatial sketchpad*) into speech-based information, which based (*sub)vocal rehearsal mechanisms* are kept in the phonological loop. This is controlled by the *central executive* (highlighted aspects each 0.5p). **[max 2 points]**

(c) audiobook; as this would constitute the *irrelevant speech effect* (only full points if named), interfering with the subvocal rehearsal (see p. 126) **[max 1 point]**

2.4 Question 4

- ***Learning:*** (a) Outline the "level of processing theory" suggested by Craik & Tulving and describe an experiment to test the theory empirically. (b) What is the "spacing effect" for learning material? Describe an experiment to show the effect. (c) Why do most people not know their debit card number although seeing the number each time they pay with it? Discuss considering level of processing and spacing effects.

Key points to be addressed in answer:

(a) Core idea: 'shallow' processing of materials leads to poor retention but 'deep' processing leads to better encoding and remembering. The experiment should at least operationalise two levels of processing, classical approach would be the Case/Rhyme/Semantic judgment of words (see box 6.1 textbook pages 180-181]; **[max 2 points]**

(b) The spacing effect: material better remembered when the material is studied on a number of different occasions over a long period of time ('spaced presentation'), rather than studied in one long period ('massed presentation'), even when the total study time is equated – the experiment should mirror this [pages 186]. **[max 2 points]**

(c) Spacing effect (frequent exposure to it at different occasions) should improve memory, however, the processing is, if at all, shallow **[max 1 point].**