

Pozzulo et al. (line-ups)

AS

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What you need to know

The syllabus asks the same things of every core study. For Pozzulo et al. (2011), a laboratory experiment that compared how young children and adults pick faces out of line-ups, using cartoon characters and real people as the faces to be remembered, you should be able to:

1. **Explain the psychology being investigated: eyewitness testimony and false positive responses.**
2. **Give the background:** why children make more mistakes than adults when the culprit is missing from a line-up, and the two kinds of explanation, **cognitive** and **social**.
3. **State the aims** of the study.
4. **Describe the procedure and its methodology:** the research method (a laboratory experiment that also used interviews and questionnaires), the two samples, the experimental design, the videos and targets, how the foils were chosen, how the line-ups were shown (target-present and target-absent), the controls, and the variables.
5. **Discuss the ethical issues:** consent from parents and from children, minimising harm, confidentiality and the right to withdraw.
6. **Give the results:** correct identifications in target-present line-ups and correct rejections in target-absent line-ups, for children and adults and for cartoon and human faces, and how they can be shown and read (tables, graphs, means, standard deviations).
7. **State the conclusions** that were or could be drawn.
8. **Evaluate every part of the study:** its method, samples, design, data, validity, reliability, objectivity, generalisability and ethics.
9. **Relate it to the AS issues and debates:** the application of psychology to everyday life (police line-ups with child witnesses), individual and situational explanations, and the use of children in research. Nature versus nurture applies only weakly and no animals were used.
10. **Explain why it belongs to the cognitive approach**, using its two assumptions, and compare it with the other cognitive core studies, Andrade and Baron-Cohen et al.

Understand it

The psychology: eyewitness testimony and false positives

Eyewitness testimony is the account a person gives of a crime or event they saw: what happened, and what the people involved looked like and wore. The police use it to find a suspect, and it can be presented as evidence in court. Because it depends on memory, it can be wrong.

One way police test a witness's memory is a **line-up** (also called a photo array): the witness is shown several faces and asked whether the person they saw is among them, and if so, which one.

- In a **target-present** line-up, the real culprit (the **target**) is one of the faces. The other faces are **foils**: innocent people who look similar.
- In a **target-absent** line-up, the culprit is not there at all. The right answer is to say "not here".

A **false positive response** happens when the witness **chooses someone** from a line-up and believes they have picked the right person, but they are wrong. The most worrying kind is picking a face from a **target-absent** line-up, because an innocent person is then accused. The right answer in a target-absent line-up is a **correct rejection**.

Background: why do children choose wrongly?

Young children can often pick out the culprit when the culprit **is** in the line-up, but they are far more likely than adults to choose someone when the culprit is **missing**, instead of saying "not here". There are two possible explanations:

- **Cognitive factors**: the child's memory of the face is weaker, or their processing of faces is less developed, so they can't tell that none of the faces matches.
- **Social factors**: the pressure comes from the grown-up and the setting, not from memory. To a five-year-old, a police officer or researcher has **authority**, and facing one can be unsettling. Children usually try to give adults the answer they think is wanted, and to stay out of trouble, so they may want to **please** the questioner. Simply being handed a set of photos by an adult can send the message that one of them **must be picked**; pointing at nobody can feel like being unhelpful; and a child may try to read from the adult's behaviour which face the adult "wants".

To separate the two, Pozzulo et al. used faces children know extremely well: **cartoon characters**. If children recognise these faces almost perfectly when present, a poor memory can't easily explain mistakes when they are absent. Any errors that remain are more likely to be social.

The aims

- To find out whether young children's **false positive** choices in line-ups come from **social** pressure, from **cognitive** limits (memory and face processing), or from both.
- To see whether the usual pattern (children as good as adults at correct identification, but worse at correct rejection) **still appears** when the target is **highly familiar** (a cartoon character) rather than a stranger.

The samples

Feature	Children	Adults
Size	59	(not needed for the exam)
Age	4 to 7 years; mean about 5	Adults of a much wider range of ages
Sex	38 boys and 21 girls	Males and females
Where from	Pre-kindergarten and kindergarten classes (three private schools) in Eastern Ontario , Canada, so likely of higher socio-economic status	A university participant pool in Eastern Ontario
Other	Familiar with the cartoon characters	

Because the children all had to be aged 4 to 7 while adults can be any age over 18, the **standard deviation** of the adults' ages was larger than the children's: their ages were far more spread out around the mean.

Materials: the targets, the videos and the foils

There were **four targets**: two cartoon characters, **Dora** (the Explorer) and **Diego** (Go, Diego, Go!), and two real people, a female and a male. The **human female target** was a **22-year-old Caucasian student**, filmed **brushing her hair** in a bathroom. The human targets were filmed doing everyday, harmless tasks.

How the cartoon foils were chosen (before the main study):

1. Pictures of cartoon characters were collected from images freely available on the **internet**, chosen because they looked **similar to Dora or Diego**.
2. Similarity was judged on **facial structure**, **hair length** and **hair colour**.
3. **Three judges** rated **10 photographs for each target** for how similar each was to the target.
4. The **four** characters with the **highest similarity scores** were used as that target's foils.

Matching the foils to the target matters: if the target were the only character with, say, long dark hair, a child could pick it out without really remembering the face.

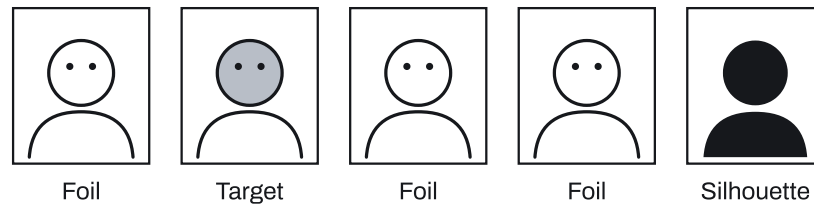
The procedure

1. The parent or guardian of each child completed a written **consent form** together with a **Demographic and Cartoon Watching Form**, a questionnaire about the child and the cartoons they watched.
2. Children were allowed to do **crafts** before the task, to settle them and lower any stress. The researchers wore **"professional-casual" clothing** (neat clothes such as a blouse or shirt, a sweater and dress-pants) rather than uniforms or lab coats, so as not to seem too authoritative.
3. Each participant watched **four short videos** (one per target) on a **laptop**, in a **random order**.
4. After **each** video, the participant was shown a **line-up** (photo array) and asked whether the person or character from the video was there (an interview with standard questions).

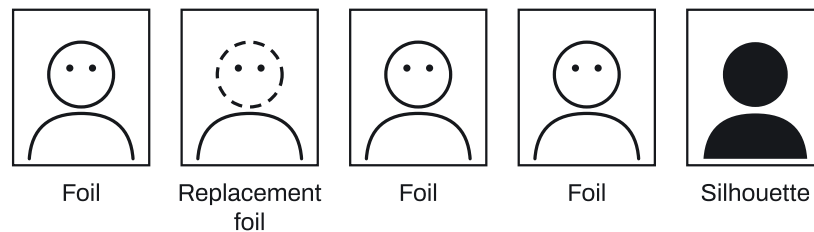
5. At the end, children were given **crayons and a colouring book**.

The line-ups

Target-present line-up



Target-absent line-up



Schematic only: the target's position changed from line-up to line-up

Feature	Target-present	Target-absent
Faces	The target plus three foils (four photos)	The target replaced by a similar foil , so four foils and no target
How shown	All at once (simultaneous) on the screen	All at once on the screen
Silhouette	Included	Included: choosing it means "the target is not here"
Position	The target's position was randomised (counterbalanced across line-ups)	The replacement foil sat in the same position the target would have had
Correct answer	Point to the target (correct identification)	Choose the silhouette (correct rejection); choosing a face is a false positive

None of the photos in a target-absent line-up had appeared in the video. The silhouette gave children an easy, concrete way to say "not here", so every response was a clear choice between faces and silhouette.

Variables, design and methods

- **Research method:** a **laboratory experiment**: conditions controlled by the researchers, a standardised procedure on a laptop. It also used a **questionnaire** (the parents' form) and an **interview** (the line-up questions).
- **Independent variables:** **age** (children or adults); **type of target face** (cartoon or human); **type of line-up** (target-present or target-absent).
- **Dependent variables:** the **correct identification** rate in target-present line-ups and the **correct rejection** rate in target-absent line-ups (so also the false positive rate).

- **Experimental design: independent measures** for age (each person was either a child or an adult), and **repeated measures** for the type of face and the type of line-up, since every participant watched all four videos and saw both target-present and target-absent line-ups.
- **Controls:** four videos in a random order; the target's line-up position randomised; foils rated for similarity by three judges; the same instructions and the same silhouette option for everyone; the same laptop presentation.
- **Data: quantitative:** the number (or percentage) of correct identifications and correct rejections. The researchers didn't have to interpret answers, which makes the data **objective**.

Ethical issues

Guideline	What it means	In this study
Consent	A person agrees to take part only after learning what the study involves, so the choice is an informed one	Each child's parent or guardian gave written consent; the children did not give their own consent
Minimising harm	Researchers must keep any physical or psychological damage as small as possible, so taking part is no riskier than ordinary life	No real crime was seen; videos showed cartoons and adults doing ordinary tasks; crafts beforehand to settle the children; crayons and a colouring book at the end
Confidentiality	Results are published so that nobody's answers can be traced back to them	Only general details were published (children from kindergartens in Eastern Ontario; adults from a participant pool in the same area). Even initials should not be used
Right to withdraw	Participants can stop at any time	A four- or five-year-old facing a grown-up's questions is unlikely to realise that stopping is allowed, or to dare to say so

A case can be made either way: the study looks **ethical** on consent (from parents), harm and confidentiality, but critics could say a child may have felt some **stress** when they couldn't find the target in a target-absent line-up, and may not have felt able to withdraw.

The results

Target-present line-ups (correct identification)

- **Children** correctly identified **99%** of the **cartoon** faces, so their memory for these familiar faces was almost perfect.
- **Adults** also identified cartoon faces very well (a correct identification rate of **0.95**), but identified only **66%** of the **human** faces.
- Both groups found cartoon targets easier to identify than human targets.

Target-absent line-ups (correct rejection)

- **Children** said "not here" correctly in **74%** of the target-absent line-ups for **cartoon** characters, more often than with **human** faces.
- Among the four targets, children's correct rejection rate was highest for **Dora (80%)**, higher than for Diego and for the two human targets.
- Children still made false positive choices, even for cartoon faces they knew well.

Reading the results: a target-absent result must be about **rejection**, not identification. A full result compares two conditions and includes the figure: "children correctly rejected the line-up more often for cartoon faces (74%) than for human faces".

A mean per child: the total of correct human-face identifications is the top of the fraction; the bottom is how many chances there were to identify a human target. Dividing one by the other gives the mean for the study's human faces.

The conclusions

- Pressure to make a choice (**social demands**), more than any weakness in memory (**faulty cognitive processing**), seems to explain why children pick a face when the culprit is missing: even with faces they recognise almost perfectly, some still pointed at a foil.
- Young children are much less reliable at saying the culprit **is not** in a line-up than at picking the culprit when they are there.
- Familiarity with the target helps children reject a line-up correctly, but doesn't remove the problem.

Why it is cognitive

The cognitive approach has two assumptions (syllabus):

- Everyone handles information in the **same sequence**, much as a **computer** does: information comes in (**input**), the mind works on it (**process**), and a response comes out (**output**).
- People **differ from one another** in how well these mental processes work (for example **attention, language, thinking and memory**), and those differences can account for differences in their **behaviour and emotion**.

Pozzulo et al. fits both. Each participant saw a video (**input**), stored and later compared the face with those in the line-up (**process**, memory and recognition) and pointed to a face or the silhouette (**output**). And the strength of the stored face mattered: children turned down target-absent line-ups more often for cartoon faces (74%, and 80% for Dora) than for human faces, so a difference in **memory** led to a difference in what they did.

Issues and debates

- **Application to everyday life:** police interviewing child witnesses can reduce social pressure (casual clothing, a calm tone, play first, no leading questions) and treat a child's choice from a target-absent line-up with caution.

- **Individual and situational explanations:** children's errors were explained by the **situation** (an adult asking them to choose) more than by something inside the child (a weaker memory).
- **The use of children:** it gives findings that apply to real child witnesses, but raises consent and stress issues and needs child-friendly materials (cartoons, a silhouette).

Key facts and formulas

There is no formula list in the 9990 exam. "Learn it" means you must remember it.

Fact	Status
Pozzulo et al. children: 59, aged 4–7 (mean about 5), 38 boys and 21 girls, from pre-kindergarten and kindergarten in Eastern Ontario; adults: a university participant pool in Eastern Ontario	Learn it
Pozzulo et al. targets: Dora and Diego (cartoons), a human female (22, Caucasian, student, brushing her hair) and a human male; four videos in a random order on a laptop	Learn it
Pozzulo et al. foils: internet images similar in facial structure, hair length and hair colour; 3 judges rated 10 photos per target; the 4 most similar were used	Learn it
Pozzulo et al. line-ups: simultaneous; target-present = target + 3 foils + silhouette; target-absent = target replaced by a similar foil in the same position + silhouette; target position randomised	Learn it
Pozzulo et al. results: children identified 99% of cartoon faces; adults identified 66% of human faces; children's correct rejection 74% for cartoon faces (80% for Dora), higher than for human faces	Learn it
False positive response: choosing a face, believing it is right, when it is wrong (in a target-absent line-up, choosing anyone at all)	Learn it
Percentage = $\frac{\text{number correct}}{\text{number possible}} \times 100$	Learn it
Mean = $\frac{\text{sum of the scores}}{\text{number of scores}}$; a larger standard deviation means the scores are more spread out around the mean	Learn it

How to do it

We have tagged 18 questions on this study, from 2024 to 2026 (Papers 1 and 2). 8 of them have parts of more than one type, so the counts add up to 28.

Question type	Questions
Describe the procedure, materials and line-ups	6
Psychology investigated, background, aim and conclusion	5
Evaluate: strengths, weaknesses, validity and reliability	4

Question type	Questions
Results and data	4
Ethical guidelines in the study	3
Describe or explain the samples	2
Link a cognitive-approach assumption to the study	2
Apply the study to child eyewitnesses	1
Compare with another cognitive study	1

1. Describe the procedure, materials and line-ups (6 questions)

Exact recall, one mark per point; many of these lists are definitive, so learn "Materials", "The procedure" and "The line-ups".

1. **Find exactly which part is asked:** the targets, the foil selection, the target-present line-up, the target-absent line-up.
2. **Give separate specific points**, one per mark, with the numbers (3 judges, 10 photos, 4 chosen, four videos).
3. **Stay on the question.** For "how the foils were **selected**" don't describe what the pictures looked like (black and white, cropped). For "the line-up **presentation**" don't describe how photos were chosen or what the participant had to do.

Variations you will meet:

- **Target-present presentation** (5 marks, one point unique to it): **the target was in the line-up with three foils**; simultaneous; target position randomised and counterbalanced; four videos in a random order on a laptop; the line-up came after each video; a silhouette was included.
- **Target-absent presentation** (5 marks, one point unique to it): **the target was replaced by a similar-looking foil**; four photos; a silhouette, standing for "not here"; the replacement was in the target's position; simultaneous; after each video; none of the photos had been in the video. "Three foils plus a silhouette" counts as two points.
- **The foil selection** (4 marks): internet images; similar in appearance to Dora or Diego; judged on facial structure, hair length or hair colour (one mark for any of these); three judges; ten photographs per target; the four highest-rated used.
- **One way the foils had to be similar**: facial structure, hair length or style, hair colour, clothes, colours, sex. "Race" is not accepted.
- **The human female target**: Caucasian (white); a student; 22 years old; brushing her hair in a bathroom.
- **A cartoon character used**: Dora or Diego. Only the first answer is marked.
- **The researchers' clothing**: "professional-casual" (neat clothes, a blouse or shirt, a sweater, dress-pants), because formal dress, uniforms or lab coats could add social pressure and make children more likely to choose wrongly.

2. Psychology investigated, background, aim and conclusion (5 questions)

- **"Describe the psychology being investigated"** (3 marks): **eyewitness testimony** (recalling what you saw of a crime; can include appearance and clothing; may be used in court); **false positive responses** (choosing someone from a line-up who isn't the culprit while believing it is right; 2 marks if detailed); **social demands** (children feeling pressured to choose); a general description of a line-up. Only **one** mark goes to an example from Pozzulo et al. (children chose a cartoon face from a line-up).
- **"Outline the term false positive responses"** (2 marks): definition (1) plus an example from the study (1): a child choosing a face from a line-up when the target was not in it.
- **The role of social factors** (3 marks, background only, not findings): one mark per point, from the "Background" section: the adult's **authority** unsettles the child; the child tries to give the wanted answer or avoid trouble; being handed photos suggests one **must be picked**; pointing at nobody feels unhelpful; the child reads the adult's behaviour for a hint.
- **The aim** (2 marks): say what was tested and in whom: "to find out whether children wrongly pick a face from line-ups because of social pressure or because of limits in memory", or "to test whether children still make more false positives than adults when the face to be remembered is one they know very well". "To see whether children are good eyewitnesses" is brief (1). Testing false positives is **how** the aim was tested, so it earns nothing as the aim.
- **One conclusion** (2 marks): when the culprit is missing, young children's wrong picks are driven mainly by **social demands** (pressure to choose), and a weak memory is not the main cause, so give both halves: social pressure, **not faulty cognitive processing** (2). Naming the social pressure alone is brief (1). A result such as a percentage earns 0 as a conclusion.

3. Evaluate: strengths, weaknesses, validity and reliability (4 questions)

Name the issue (1 mark), then explain it with a detail from **this** study (1 mark).

Point	Strength or weakness	Example from the study
Standardisation (reliability)	Strength	Every participant saw the same four videos in a random order on a laptop and had the same line-up instructions, so the study can be repeated and its results checked
Controls (internal validity)	Strength	Foils rated by three judges for similarity; target position randomised; a silhouette option for all; so differences in rejection are more likely due to the IVs
Objectivity and quantitative data	Strength	Responses were limited to a face or the silhouette, so there was no "maybe" and nothing for the researcher to interpret
Ecological validity (mundane realism)	Weakness	Children rarely, if ever, choose between photos on a laptop screen to find a character; no crime was seen, so the fear of a real witness was missing

Point	Strength or weakness	Example from the study
Ecological validity	Strength (arguable)	Dora and Diego are faces from the children's own TV viewing, so the targets felt familiar rather than strange
Generalisability	Weakness	Children from three private kindergartens in one area, likely of higher status; adults from one university pool, who may be more motivated
Participant variables	Weakness	Nothing balanced children's temperament or whether they had seen the foil characters before; a compliant child might pick a face just because an adult asked, which looks like a social effect but is personality

Variations you will meet:

- **One strength in relation to reliability** (2 marks): a fixed, standard procedure lets other researchers repeat the study and check its findings (1); then a detail from Pozzulo et al., for example the same four videos, each followed by a line-up with a silhouette (1). Mentioning "controls" alone gets nothing.
- **Valid or not valid** (two friends disagree, 4 marks): one mark for naming a **type** of validity (ecological, mundane realism, internal, population), then up to three linked points of evidence. Standardisation, reliability or replicability earn **nothing** here. Pick one side only.
- **Objectivity** (2 marks): what it means: results that don't depend on who records them, because the researcher's own opinions or feelings play no part; an eyewitness example: in a staged event the researcher knows exactly what was shown, so each answer can be checked as right or wrong. A feature that helped: each child pointed either to a face or to the silhouette (strategy), so every answer was already a clear category and the researchers had nothing to judge (how it helped).

The 10-mark evaluation ("two strengths and two weaknesses, at least one about ..."):

1. Plan four points of **equal depth**, including the **named issue** (ecological validity, reliability, ethics, generalisability...). Without it the answer is capped at Level 3 (6 marks).
2. For each point: name it, say whether it's a strength or weakness of **this** study, give **at least two** details from Pozzulo et al., and explain **why** it matters.
3. **Ecological validity** is easiest as a weakness: an artificial task (a laptop line-up of cartoons), short harmless videos instead of a real, stressful crime, and so less relevance to real line-ups.
4. Don't describe the procedure or write about applications in an evaluation.

4. Results and data (4 questions)

1. **A result with data** (3 marks): a meaningful comparison (2) plus the right figure (1). Check whether it's about **target-absent** (correct rejection: 74% for cartoon faces, 80% for Dora) or **target-present** (correct identification: 99% of cartoon faces by children; 66% of human faces by adults). The March 2025 report says most answers wrote about target-present when target-absent was asked, and got nothing.
2. If the question says **children**, compare **within the children** (cartoon versus human, Dora versus the others). Comparing with adults caps the answer at 1.

3. **"Explain how the mean was calculated"** (2 marks): tie it to the study. The total of correct picks of the human targets is divided by how many chances there were to pick a human target. A general recipe for a mean, with no mention of what was counted here, earns 1.
4. **Standard deviation** (2 marks): a measure of **spread** around the **mean**. "Why was the adults' SD of age larger?": the adults' ages were more spread out (1); the children were all aged 4 to 7, a narrow range, whereas adults can be anywhere from 18 to old age (1).
5. **Drawing a table from a graph** (4 marks): one mark each for accurate figures, a heading for the type of target, the row or column labels (cartoon female, human female), the participant groups (children, adults) and the DV with units (percentage correct identification). Put "%" in the heading, not after every number.

5. Ethical guidelines in the study (3 questions)

For each guideline, **define** it in your own words (1) and give an **example** from the study showing whether it was kept or broken (1). The March 2026 report says many answers gave the example but never explained the guideline, and that a definition that just repeats the guideline's name ("minimising harm is keeping harm low") earns nothing.

- **Consent**: kept through the parents (written form); the children themselves did not consent. "The children gave consent" is not credited.
- **Consent from both** (3 marks): explain consent (1); why from parents (young children can't fully understand what they're agreeing to) (1); why from children too (they have feelings and should agree for themselves) (1).
- **Minimising harm**: no real crime or criminal; cartoons and everyday adult tasks; crafts beforehand; crayons and a colouring book afterwards. "Feeling stressed trying to point at the criminal" is not accepted.
- **Confidentiality**: nobody's answers can be traced back to them; only general sample details were published (kindergartens and a participant pool in Eastern Ontario). Don't confuse it with **privacy**, and initials are not anonymous.
- **"Is the study ethical?"** (two friends, 4 marks): name a relevant guideline (1), then up to three explanation marks. **Ethical**: consent via parents; the task wasn't stressful; children already knew Dora and Diego. **Not ethical**: a child unable to find the target might have been upset by the pressure to choose; with a grown-up asking the questions, young children were unlikely to know they could stop; the children themselves never agreed to take part. **Deception is not accepted** for either side.

6. Describe or explain the samples (2 questions)

- **Features of the children** (one mark each): 59; aged 4–7 (mean about 5); 38 boys and 21 girls (majority male); pre-kindergarten or kindergarten; Eastern Ontario; from private schools, likely higher socio-economic status; familiar with the cartoons. "Canadian" isn't accepted (only where they lived is known).
- **Why both sexes in both samples** (2 marks): boys and girls (or men and women) may not behave the same way, for example in how strongly they feel an adult's pressure, how well they remember faces, or how much they watch these cartoons (1); so if the children's group and the adults' group had a different mix of sexes, sex would be a **confounding variable**, and a difference blamed on age might really be due to sex; having both also lets the findings apply to both sexes (1).

7. Link a cognitive-approach assumption to the study (2 questions)

1. **The assumption** (2 marks): input → process → output in everyone, like a computer; or individual differences in cognitive processing, naming a process (attention, language, thinking, memory). A bare version is brief (1).
2. **The support or "why cognitive"** (2 marks): a result (1) plus an explicit link (1). For example: children correctly rejected target-absent line-ups more often for cartoon faces (74%) than for human faces (result); a face that is stored strongly in memory is easier to compare with the line-up and rule out, so a difference in a mental process, memory, produced a difference in behaviour (link). Or: Dora was rejected correctly most often (80%), so how familiar the stored face was changed the choice made (output). Don't just repeat the assumption as the link.

8. Apply the study to child eyewitnesses (1 question)

"Suggest how child eyewitnesses can be helped" (4 marks, one per suggestion clearly based on the study):

- reduce authority: casual clothes, a calm voice, nothing stern or formal;
- settle the child first with child-friendly play;
- make sure the suspect really is in the line-up when one is used, or treat a choice from a possibly target-absent line-up with caution;
- give a clear way to say "not here" (like the silhouette);
- don't challenge a child's answer so they doubt themselves;
- ask non-leading, open questions and avoid jargon;
- watch for stress and pause if the child is upset.

9. Compare with another cognitive study (1 question)

The 8-mark part of Paper 1 Question 9 or 10, marked in four levels per point (Level 4 needs the point well explained, with an example from **both** studies).

- **Similarity, both experiments:** Pozzulo et al. manipulated the type of face (cartoon or human) and type of line-up, and compared ages; Andrade manipulated doodling or not. So both looked for cause and effect.
- **Similarity, quantitative data:** Pozzulo counted correct identifications and rejections; Andrade counted names and places recalled.
- **Difference, design:** Andrade used only independent measures (doodling or control); part of Pozzulo et al. was **repeated measures**, since every participant saw both target-present and target-absent line-ups. So Pozzulo's participants took part in several levels of an IV, Andrade's in one.
- **Difference, cognitive skill:** Andrade measured **recall** (writing down names with no cues); Pozzulo measured **recognition** (choosing from faces shown), which allows a false positive.
- Different aims are capped at Level 1; anything about the sample earns nothing if the sample is banned.

Worked examples

Example 1

From the study by Pozzulo et al. (line-ups):

(a) Describe what happened to a child participant from the start of one trial to the end of it. [3]

(b) Explain why a silhouette was included in every line-up. [2]

(a) The child watched a short video of one target, such as Diego, on a laptop **(1)**. Straight afterwards they were shown a line-up of photos, all at the same time, with a silhouette among them **(1)**. They were asked whether the character from the video was there, and pointed to a face or to the silhouette if they thought it wasn't **(1)**.

(b) It gave children a simple, concrete way of saying the target was not there, so they didn't have to put "none of them" into words **(1)**. That meant every answer was a clear choice, so a correct rejection could be recorded objectively, and choosing a face in a target-absent line-up could be counted as a false positive **(1)**.

Example 2

A researcher repeats part of the study. Five children each see **two** human-face line-ups with the target present. The (made-up) numbers of correct identifications are 1, 2, 0, 1 and 1.

(a) Calculate the mean number of correct identifications of human faces per child, and the percentage of all possible identifications that were correct. [3]

(b) Explain why the researcher should show the four videos in a random order. [2]

(a) Total correct = $1 + 2 + 0 + 1 + 1 = 5$ **(M1)**. Mean per child = $5 \div 5 = 1$ **(A1)**. Possible identifications = $5 \times 2 = 10$, so $\frac{5}{10} \times 100 = 50\%$ **(A1)**. (Made-up numbers for practice, not the study's data.)

(b) If every child saw the videos in the same order, performance could change because of the order itself, for example practice or tiredness by the last line-up (order effects) **(1)**. Randomising spreads these effects across the cartoon and human videos, so a difference between them is more likely to be caused by the type of face **(1)**.

Example 3

Kofi, aged 6, saw a man take a handbag from a café table. A police officer is about to show him photos of possible suspects.

Using your knowledge of the study by Pozzulo et al. (line-ups), suggest how the officer could help Kofi identify the man accurately. [4]

The officer could wear ordinary casual clothes rather than a uniform and speak in a calm, friendly voice, so they seem less like an authority figure **(1)**. Before looking at the photos, they could spend a few minutes playing or drawing with Kofi to put him at ease **(1)**. They should give him a clear way to say the man isn't there,

such as a blank card, and tell him that this is a fine answer **(1)**. After he answers, the officer shouldn't question or challenge his choice, so he doesn't feel he gave the "wrong" answer **(1)**.

Example 4

Evaluate the study by Pozzulo et al. (line-ups) in terms of two strengths and two weaknesses. At least one of your evaluation points must be about reliability. **[10]**

Plan: strengths are standardisation and reliability (the named issue) and objectivity; weaknesses are ecological validity and generalisability. Each paragraph has the point, two details and why it matters.

Strength 1: reliability (the named issue). The procedure was standardised. Every participant watched the same four videos (Dora, Diego and two human targets) on a laptop in a random order, followed by a simultaneous line-up with a silhouette and the same question each time. Because the materials and steps are known, another researcher could run the same procedure with a new group of children and see whether the same pattern of false positives appears, so the reliability of the findings can be tested.

Strength 2: objectivity. Each response was either a face or the silhouette, so there was no "maybe" for the researcher to interpret, and because the researchers knew which line-ups contained the target, every answer could be scored as right or wrong. This gave quantitative data (correct identifications and rejections) that could be compared fairly between children and adults and between cartoon and human faces, free of researcher bias.

Weakness 1: ecological validity. Picking cartoon characters from photos on a laptop is not like being a real eyewitness. Nobody saw a crime, the videos were short and harmless, and choosing wrongly had no consequences, whereas a real child witness may be frightened and questioned at a police station. So the findings may not show how children behave in real line-ups, where stress and social pressure could be even greater.

Weakness 2: generalisability. The children came from kindergartens at three private schools in one part of Canada and were likely of higher socio-economic status, and the adults came from one university participant pool. Children from other backgrounds or cultures may react differently to adult authority, so the conclusion that social demands cause false positives may not apply everywhere.

How it would be marked: four points of equal depth, each with study detail and an explanation, including the named issue: the top level (9–10 marks).

Common mistakes

- **Answering about target-present when target-absent is asked:** the March 2025 report says most answers did this. Target-absent results are about **correct rejection**, target-present about **correct identification**.
- **An example with no explanation of the guideline:** the March 2026 report says this was common in ethics questions. Define the guideline first, in words that don't just repeat its name.
- **Saying the children consented:** their parents or guardians did; the children didn't give their own consent.

- **Thinking the children saw a real crime or criminal:** the videos showed cartoons and ordinary adults; this matters for minimising harm (March 2026 report).
- **Using initials as an example of confidentiality:** the March 2026 report says initials should not be used. Point instead to the general sample details.
- **Mixing up privacy and confidentiality:** they are different guidelines.
- **Giving deception** as an ethical issue: it is not accepted for this study.
- **Describing the pictures when asked how the foils were selected:** give the steps (internet images, three judges, ten photos, top four).
- **Giving a result as a conclusion,** or testing false positives as the aim: say what the findings show (social demands, not faulty cognition) and what the study set out to investigate.
- **Using standardisation as evidence of validity:** it supports reliability, and earns nothing in a validity answer.
- **Comparing children with adults** when the question asks about the children's results.

How to get the marks

- **"Identify" and "state"** need short exact answers; only the first is marked when one is asked for.
- **"Describe"** needs separate points, one mark each, with exact details (3 judges, 10 photos, the target plus 3 foils, a silhouette).
- **"Outline"** a term or aim: a definition or aim with a little detail; add an example from the study when asked.
- **"Explain"** needs the reason (1) and a link to Pozzulo et al. (1). For ethics: what the guideline means, then how this study kept or broke it.
- **"You must use data":** give the figure (such as 74% for cartoon faces) inside a meaningful comparison.
- **"Suggest"** (applications): each suggestion clearly based on the study's procedure or findings.
- **Two friends disagree:** pick one, name the guideline or type of validity, then give linked evidence; mixing up the names caps the answer at 2.
- **"Evaluate ... two strengths and two weaknesses"** (10 marks): four equal points, the named issue included, two or more details in each, no description.

Quick check

1. Calculate the percentage of the child sample that was male.
2. Explain the difference between a correct rejection and a false positive response.
3. In a (made-up) replication, children see 20 target-absent line-ups in total and choose the silhouette in 15 of them. Calculate the correct rejection rate and the false positive rate.
4. Explain why cartoon characters were used as targets.
5. Outline one way the study kept to the guideline of minimising harm.

Answers

1. $\frac{38}{59} \times 100 = 64.4$, so about **64%** were boys.
2. Both happen in a **target-absent** line-up. A correct rejection is saying the target isn't there (choosing the silhouette); a false positive is choosing a face, believing it's the culprit, when the culprit isn't in the line-up.
3. Correct rejection rate = $\frac{15}{20} \times 100 = \mathbf{75\%}$. The other $20 - 15 = 5$ choices were faces, so the false positive rate is $\frac{5}{20} \times 100 = \mathbf{25\%}$.
4. Children know these characters so well that their memory for them should be almost perfect (they identified 99% of cartoon faces when present). So if they still picked a face when the character was absent, the error is unlikely to come from poor memory, and is more likely to come from social pressure to choose.
5. Under this guideline, nobody should come out of a study worse off, in body or mind, than they went in, and taking part should carry no more risk than an ordinary day. The children never saw a real crime, only cartoons and adults doing ordinary tasks, and they did crafts beforehand to settle them and were given crayons and a colouring book at the end.

Past questions to try

- **9990/12/F/M/25 Q4**: one result from the children in target-absent line-ups, with data.
- **9990/12/M/J/24 Q6**: the line-up presentation in the target-absent condition.
- **9990/12/O/N/24 Q7**: how to help child eyewitnesses, using the study.
- **9990/12/F/M/24 Q5**: an assumption of the cognitive approach, a supporting finding and the term false positive.