



Prize Winner

Science Investigation

Year R-2

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School**



Science Investigation: Humans vs. Reality

By Luke Boucher

Background

People are using Artificial Intelligence (AI) to do things more and more every day. Sometimes we can be using AI without even knowing it or wanting to, like on internet search engines. Artificial intelligence (AI) is when a computer can think and learn so that it can carry out jobs that are usually done by people. This can be things like solving problems, making pictures or carrying out physical tasks, like using machines in a factory to do jobs faster or do jobs that aren't safe for humans to do. Over the past few years, AI pictures and videos have become more realistic. Apple has made a new feature called "Apple Playground" where people can edit their photos with AI, to make them different in many ways. Things can be taken out of photos and people can be added in to photos where they weren't really there before. This might be helpful for photos where something is in the way, but it can also be used in other ways that might cause problems. People can share these pictures and videos on sites like YouTube and Facebook and sometimes people can't tell if they are real or not. This can trick people if they don't realise something isn't true. There was even a problem after a fight in Venezuela where AI videos spread on social media and the internet and these were looked at millions of times. This can change people's minds about what really is really happening in the world and how they feel about it.

I am going to study about how AI can make photographs which look real and whether human adults can tell the difference.

Questioning and Predicting

Aim:

1. To investigate whether adults can tell the difference between AI generated pictures and real photographs.
2. To investigate whether adults are better at telling the difference between AI generated pictures and real photographs for animals, scenery or people's faces.
3. To investigate whether different age groups are better than others at telling the difference between real and AI pictures.

Hypothesis: I think that adults will not be able to tell the difference between AI generated pictures and real photographs. I think that they won't perform better at picking one category over another. I don't think that any age group will be better than any others.

Planning and Conducting

I decided to just test adults this time. I decided to test pictures from three categories: animals, people and scenery. I decided to choose five questions for each category. I decided to test 20 people.

Equipment and Materials:

1. Computer or tablet with access to the internet, printer
2. Paper, pens and pencils

Method:

1. Search for pictures on the internet, both real photos and AI. I used two similar looking pictures for each question.
2. Make an answer sheet so that people can write which picture they think is real and which is AI for each question (see below).
3. For each participant, I explained how to take the test and asked them for consent.
"For each question, please choose which picture you think is real and which is AI and mark this on the answer sheet. Please spend 5 minutes or less, and do not ask anyone else for help. You can record any thoughts or comments you have at the end of the time".
This is the answer sheet that I used:

Answer Sheet:		
Please choose:		
Age range: 20 - 30		
30 - 40		
40 - 50		
50 - 60		
60 - 70		
70+		
Gender: _____		
Please write A or B under Real or AI for each picture		
Question	Real	AI
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
Thoughts or comments?		

It was a fair test because everyone was looking at the same pictures and had the same amount of time.

Processing and Analysing Data and Information

The average score overall was 6.55 / 15 which is 44%.

The median score was 7 (47%).

The range of scores was between 1 (6%) (lowest) and 10 (67%).

Table of Right Answer vs. Wrong Answer for each question

Question Number	Right	Wrong
1	4	16
2	8	12
3	14	6
4	11	9
5	8	12
6	10	10
7	6	14
8	8	12
9	8	12
10	11	9
11	5	15
12	10	10
13	14	6
14	12	8
15	2	18

Graph of Right Answer vs. Wrong Answer for each question

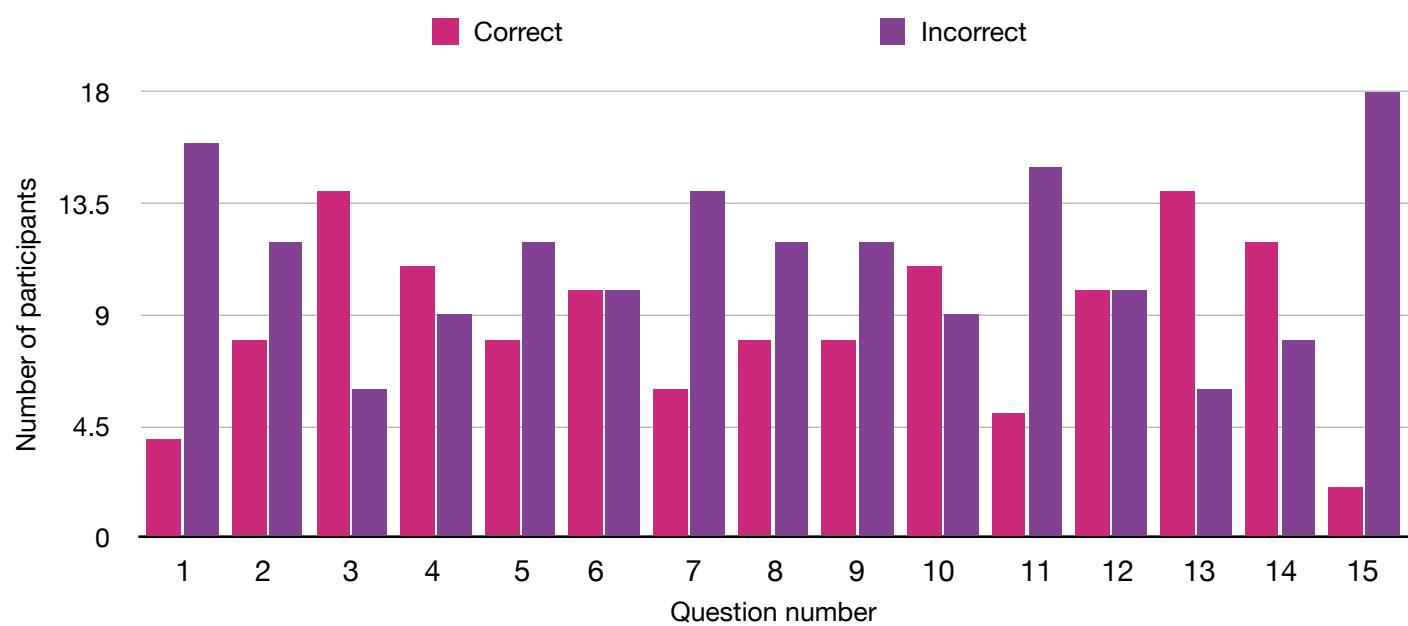


Table of Right vs. Wrong Answers per Category

	Total Right	Total Wrong
Animals	45	55
People	43	57
Scenery	43	57

Graph of Right vs. Wrong Answers per Category

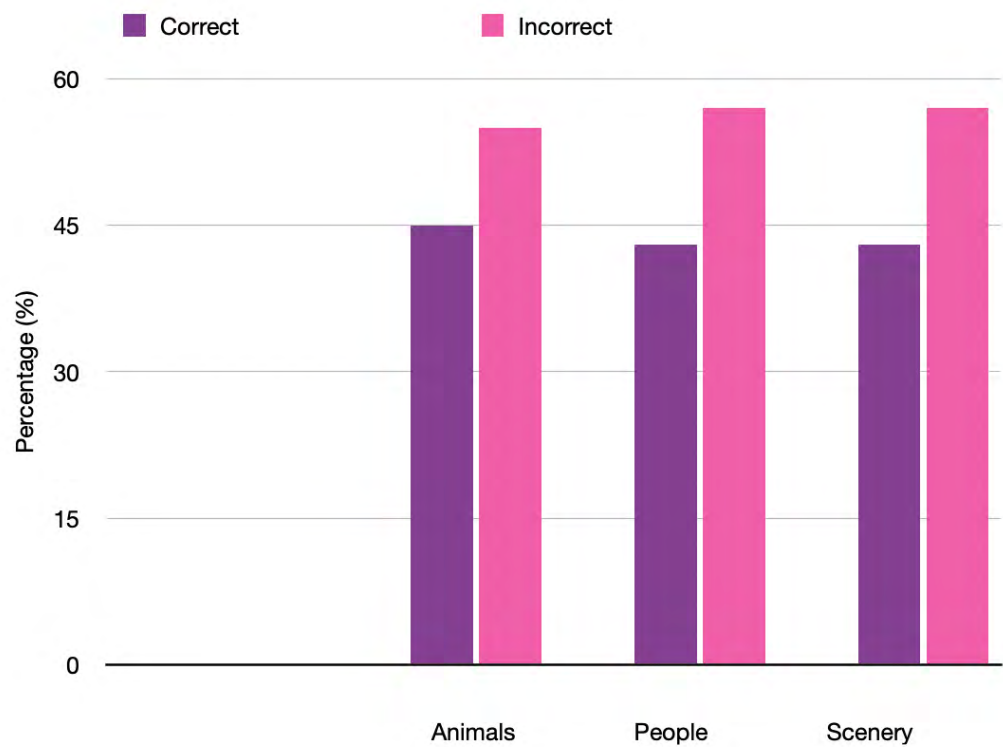
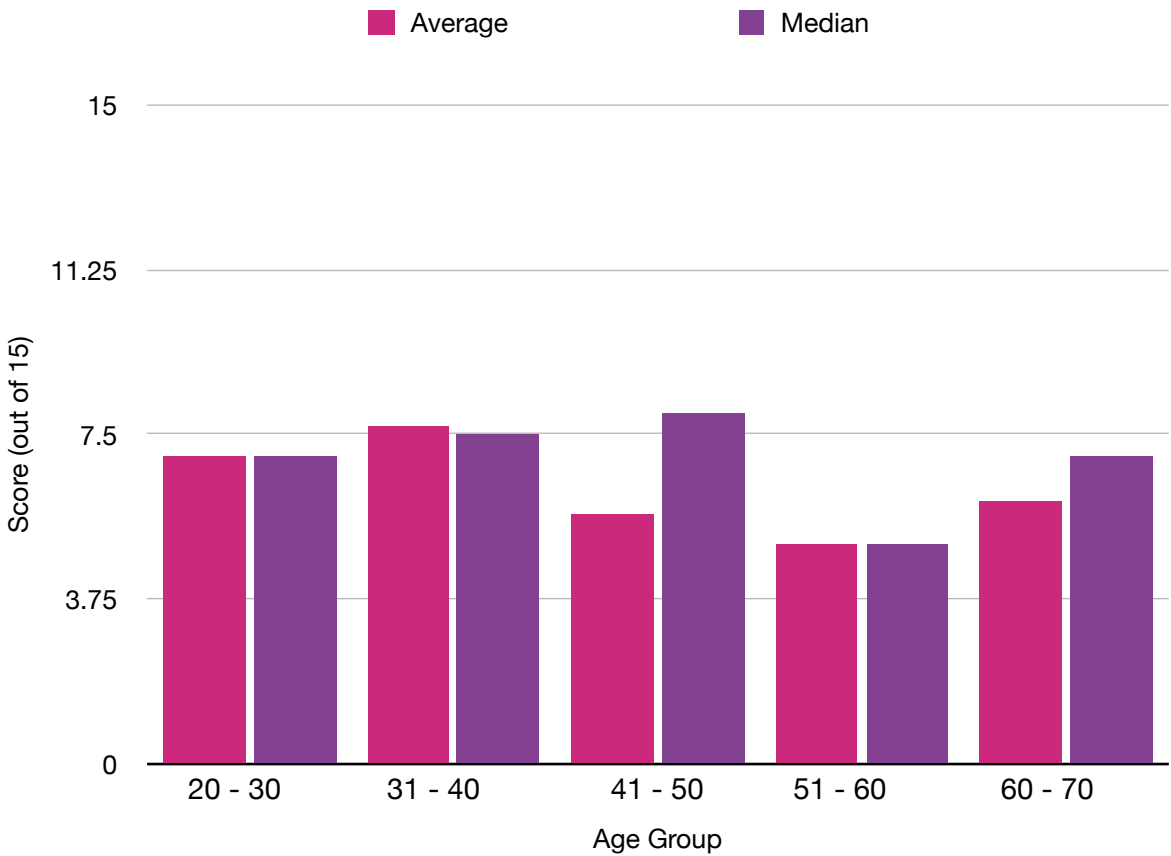


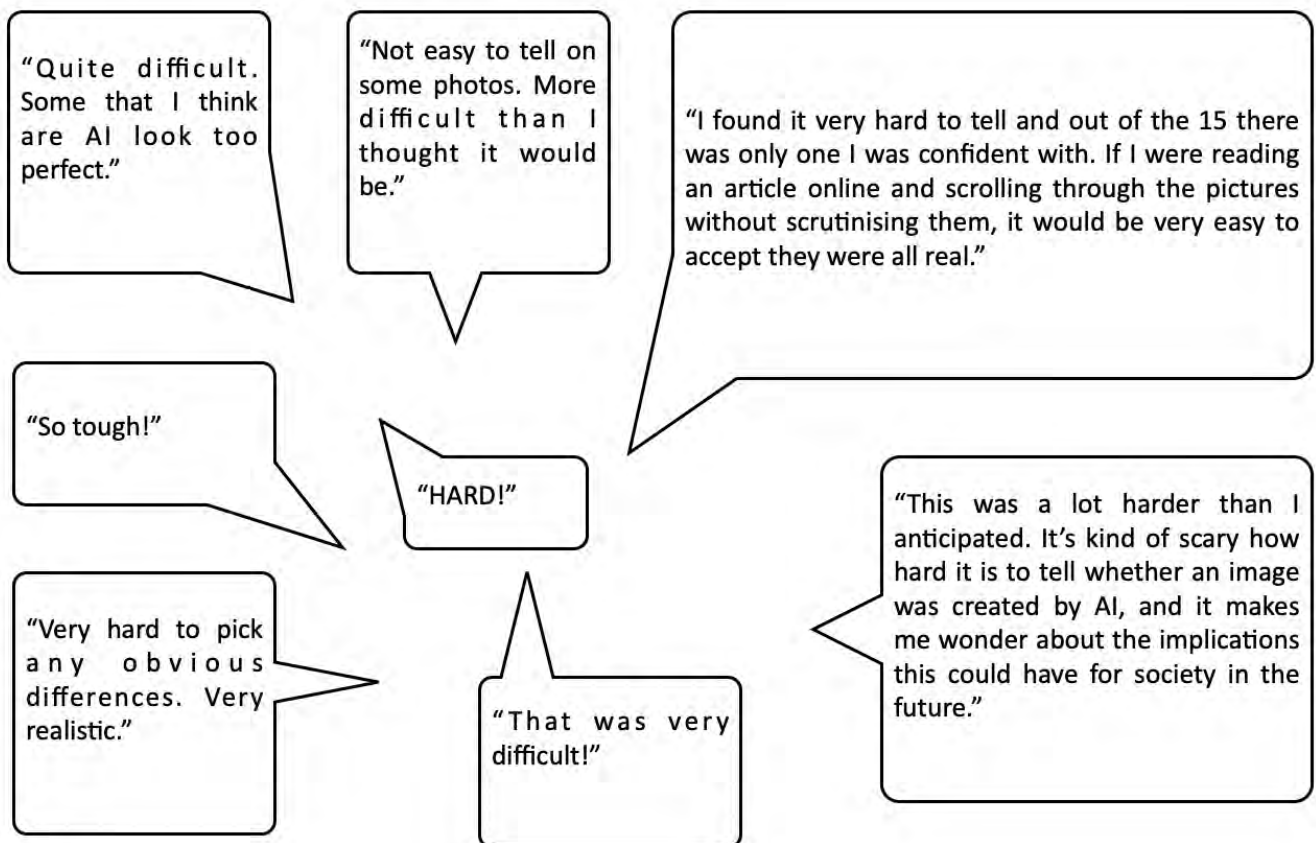
Table of Average and Median Score by Age Group

	Number of Participants	Average Score	Median Score
20 - 30	3	7	7
31 - 40	6	7.7	7.5
41 - 50	3	5.7	8
51 - 60	1	5	5
61 - 70	7	6	7
70	0	Not tested	Not tested

Graph of Average and Median Scores by Age Group



Comments from Participants



Evaluating and Communicating

My investigation shows that my hypothesis was correct. People are not good at telling the difference between real photos and photos made by AI. The average score was 44% and the median score was 46% which shows that less than half the time people could tell the difference. Two people scored 1/15 (7%). The highest score was 10/15 (67%).

Question 15 was the hardest, only two people got that one right. That was a picture of an autumn forest path. Question 1 was also hard for people, only 4 people got that right. That was a picture of a dog on a beach. More people got Question 3 and Question 13 correct than incorrect. Question 3 was a dog on a street and Question 13 was a lake with snowy mountains reflected in it.

People were not any better at telling the difference between animals, people and scenery. The scores were mostly the same over all the categories.

The 20-30 and 31-40 age groups did the best over all, but some of the age groups didn't have many people in them. 51-60 only had one person. This means the information might not be accurate about which age group was best. I would need to test more people next time.

There were lots of comments about the test. Everyone found it quite difficult. I observed that it shocked a lot of people and made people think about how realistic AI photos can be. I think it is important for people to be aware and understanding of how AI is affecting our daily lives. Changes and improvements in AI photos are happening really quickly and if people don't know about it, it could mean that we can't tell what is true and what isn't when we look at things on the internet.

References

<https://www.youtube.com/watch?v=JcXKbUlebrU&t=43s>

<https://www.kidsnews.com.au/science-technology/apple-ai-photos-to-allow-changing-limbs-expressions-and-reality/news-story/2e956cae9226759123dc1a52585bb843>

<https://sightengine.com/>

<https://www.cyber.gov.au/business-government/secure-design/artificial-intelligence/an-introduction-to-artificial-intelligence>

<https://www.bbc.com/news/articles/c9wx2dz2v44o>

<https://www.theguardian.com/technology/2026/jan/05/maduro-venezuela-ai-images>

Word count 1013

Thanks to my mum for helping me with typing and making tables and graphs using Pages and Numbers programs.

We unfortunately could not include the photos we used due to copyright rules. We did email the website but did not hear back from them.

Oliphant Science Investigation 2026: Humans vs. Reality

Luke Boucher's Logbook

April/May

I watched a video about what AI is. People are talking about it more and more and talking about the problems with it.

I talked about AI with my family and why it might be bad if people can't tell the difference between what is real and what is fake.

My ideas were:

- people might believe things that aren't true, like news stories
- People might make photos that are fake that could embarrass people

I thought about doing an investigation about whether people can really tell this difference or not.

5/6/2026

Today I finished my Risk Assessment form and sent it to Mr Bilney, our STEM teacher. The main risk with my investigation was privacy. People might not want their information or scores published. They might feel worried or embarrassed if they got a low score. I made the answer sheets "de-identified" which means that there is no name on them.

I made consent slips to help people to understand the experiment and know that their information and scores won't be shared.

I _____ consent to take part in Luke's Oliphant Science Inquiry. I understand that I will be shown different pictures and will have to choose which one I think is real and which one is made by Artificial Intelligence (AI). I understand that my personal information (name) will not be included in the results.

Signed: _____

I spent time cutting them out.

I thought about what types of pictures I want to test people on.

I decided to use categories:

- Animals
- Landscapes
- People

My hypothesis is that people won't be able to tell the difference between AI pictures and real pictures very well. I think they won't be better at one category than another and I also don't think that any age groups will be better than another.

I thought about whether to use my family's iPad or print a booklet with the photos to use to test people. I decided to make a document that I could ask my parents to send to people to make sure we could ask as many people as possible. Everyone will have five minutes. My mum emailed the website that we are using pictures from to get permission to put them into my report.

8/6/2026

Today I made my photo document and my test answer sheet.

I tested my Dad as the first person. He seemed to find it very difficult.

I added a comment section to the answer sheet so that people can write down any thoughts or feelings they had while they were doing it or after when they found out their score.

Answer Sheet:

Please choose:
Age range: 20 - 30
30 - 40
40 - 50
50 - 60
60 - 70
70+

Gender: M

Please write A or B under Real or AI for each picture

Question	Real	AI
1	A	B X
2	B	A ✓
3	B	A ✓
4	A	B ✓
5	B	A X
6	A	B X
7	B	A ✓
8	A	B ✓
9	B	A X
10	B	A X
11	A	A B X
12	A	B ✓
13	A	B X
14	A	B ✓
15	A	B X

I found it very hard to tell and out of the 15 there was only one I was confident with. If I were reading an article online and scrolling through the pictures without scrutinising them, it would be easy to accept they were all real.

20/6/2026

I have been testing my participants. One got quite a surprising score and got 1/15 so I need to discover why that happened. I wondered about whether someone's eyesight might affect the results because as you get older sometimes your eyesight for close up things gets worse. Here is an example of someone's answer sheet. The highest score so far is 10/15. I have noticed that hardly anyone is getting Question 1 right, and only one person got Question 15 right, out of 14 people.

I have been putting my data in a table (tally chart) to look at how many people got each question right or wrong, and whether people did better at people, animals or scenery. I am also going to compare scores between different age groups to see if older or younger people are better at telling the difference.

21/6/2026

I have finished collecting data. I tested 20 people.

I have entered all my data into a table and my mum will help me make some graphs so that I can analyse it and make some observations and conclusions.

That was really interesting!

Question	Right	Wrong
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		

	Scores		
20 - 30	8 7 6		
30 - 40	9 7 6 5 6 X 10		
40 - 50	8 1 8		
50 - 60	5		
60 - 70	1 7 6 8 7 6 7		
70			

Gender			
Male	7 7 5 8 1 8 7		
Female	1 8 5 9 6 6 7 8 6 7 5 0		

OSA RISK ASSESSMENT FORM

for all entries in ☒ Models & Inventions and ☐ Scientific Inquiry

This must be included with your report, log book or entry. One form per entry.

STUDENT(S) NAME: Luke Boucher ID: _____

SCHOOL: St Peter's Woodlands

Activity: Give a brief outline of what you are planning to do.

I am going to test adults to see if they
can tell which picture is real and which
picture is AI.

Are there possible risks? Consider the following:

- Chemical risks: Are you using chemicals? If so, check with your teacher that any chemicals to be used are on the approved list for schools. Check the safety requirements for their use, such as eye protection and eyewash facilities, availability of running water, use of gloves, a well-ventilated area or fume cupboard.
- Thermal risks: Are you heating things? Could you be burnt?
- Biological risks: Are you working with micro-organisms such as mould and bacteria?
- Sharps risks: Are you cutting things, and is there a risk of injury from sharp objects?
- Electrical risks: Are you using mains (240 volt) electricity? How will you make sure that this is safe? Could you use a battery instead?
- Radiation risks: Does your entry use potentially harmful radiation such as UV or lasers?
- Other hazards.

Also, if you are using other people as subjects in an investigation you must get them to sign a note consenting to be part of your experiment.

Risks	How I will control/manage the risk
PEOPLES Privacy	I will de-identify each test score. Consent form

(Attach another sheet if needed.)

Risk Assessment indicates that this activity can be safely carried out

RISK ASSESSMENT COMPLETED BY (student name(s)): Luke Boucher

SIGNATURE(S): LB

☐ By ticking this box, I/we state that my/our project adheres to the listed criteria for this Category.

TEACHER'S NAME: Mr. Luke Harris

SIGNATURE: [Signature] DATE: 16/6/26

I _____ consent to take part in Luke's Oliphant Science Inquiry. I understand that I will be shown different pictures and will have to choose which one I think is real and which one is made by Artificial Intelligence (AI). I understand that my personal information (name) will not be included in the results.

Signed: _____