



# Artificial Intelligence Policies Association (AIPA) Research of the Future

Artificial Intelligence Perception in Education

#AIPAFR

Reference to the report:

Zafer Küçükşabanoğlu, Volkan Kılıç

Artificial Intelligence Policies Association (AIPA), Kuantum Araştırma

AIPA Research on Future: Research Report on Artificial Intelligence Perception in Education.

October, 2022



When participants were asked, “What is Artificial Intelligence?”, the rate of those who could not answer the question in the society is 23.7%, whilst it is 12.8% in enterprises and increases to 34.5% in the education sector. On the other hand, 34.5% of students, teachers and school owners could also not answer this question. Since the education sector is one of the most important institutions that will prepare individuals for these technologies, serious studies should be carried out on this issue due to this research result. According to researches; the idea of robot, robotization, robot intelligence, which is defined as the Hollywood effect, comes to the forefront with 21% in the society and 9.9% in the enterprises, whilst this rate is 19.1% among students. Although the results show a decrease in the Hollywood effect, it is observed that the Hollywood effect mostly occurs in fear and anxiety.

20.8% of the society, 14.3% of school owners, 15.7% of students and 32.4% of teachers fear of Artificial Intelligence. The rate of fear among teachers is 2 times higher than that of students. Even in the society, this rate is less and the main reason for this fear is the Hollywood effect. According to 40.6%, the biggest reason for fear is the possibility that something produced by man may has the ability to seize people, may invade and get out of control; which known as the Hollywood effect.

The rate of desire to be involved in Artificial Intelligence in the future is 28.9% in society, 54.2% in enterprises, and 43.3% among university students.

However, despite all the fears and lack of knowledge, the average willingness of all stakeholders to be involved in Artificial Intelligence is 71.4%, while this rate is 76.2% for school owners, 65.7% for teachers, and 74% for students. Based on this, it should be underlined that "teachers are less willing than students and school owners.



In previous AIPA Future Studies, 21.9% of the population and 19.1% of university students were afraid of artificial intelligence. In this study, it is observed that 32.4% of teachers and 14.3% of school managers, who need to overcome this fear through knowledge and awareness, have a similar level of fear. Due to the reflection of teachers' fear on the students they train, these students continue to have the same fear when they are university students. 66.7% of school administrators and 36.8% of teachers have a very high rate of "an understanding of invasive artificial intelligence", which emerged again due to the Hollywood effect. This anxiety is also automatically instilled in students, thus 40% of students are afraid that artificial intelligence will overtake them. Since students, who form the future of society, are afraid of "the artificial intelligence, the driving force of economic development," due to the Hollywood effect, it will be difficult for them to focus on this field.

According to 11.6% of those, who do not trust artificial intelligence, the main reason for distrust is the concept of robot. Just like in the "Research on Artificial Intelligence in Society", the idea of robot = artificial intelligence that is instilled with Hollywood movies, is dominant in the "Research on AI in Education", too and therefore turns into a fear. Despite the participants' fear of artificial intelligence, the dominant opinion (more than 60% in all three groups) is that "artificial intelligence will bring success in teaching". However, this positive thinking can be undermined by the thought that artificial intelligence will pose a threat. More than 50% of teachers, who do not trust artificial intelligence, think that artificial intelligence will pose a threat to humanity at any time. In fact, emotionality is not expected from a teacher, who is a good education-training provider, however the biggest deficiency in the use of robots instead of teachers stands out as emotions. This can be interpreted as "robots will be inadequate because they will be insensitive in understanding the human as an individual".



The most basic expectation of school managers and teachers about artificial intelligence in education and training is to reduce administrative duties (more than 50%). On the other hand, students expect to have an individualized education via artificial intelligence.

Artificial intelligence is influencing, shaping and changing all fields more and more every day. But the field, where this effect will be seen and felt most, is the education sector. As AIPA, in researches we have done so far, we observed that our society and enterprises are far from artificial intelligence. The education sector, on the other hand, is even more distant compared to society and enterprises. In order to benefit from the artificial intelligence in education, we should urgently declare mobilization to put artificial intelligence on the agenda of more than 1 million teachers and more than 20 million students. If the education community includes artificial intelligence on its agenda, it will be very valuable for the future of our country. Therefore, we urgently need to start the mobilization for artificial intelligence in education.

As AIPA, our goal is to raise awareness about artificial intelligence in Turkey, to raise awareness of artificial intelligence in the society, and to support the acquisition of individual skills by eliminating misinformation in the field of artificial intelligence. Our main duty is to produce policies, contribute to policy making processes and influence decision makers so that Turkey has a bright artificial intelligence future. As AIPA, we would like to emphasize that we will prioritize the "education sector" in our studies after our research on "Perception of Artificial Intelligence in Education".



We would like to express our thanks to the Founder of Kuantum Araştırma and Advisory Board Member Volkan Kılıç and his team, our AIPA Vice Presidents Gökhan Varan and Dr. Umut Demirezen, our AIPA Secretary General Hilal Numanoğlu, our AIPA Board Members Abdulkadir Özbek, Doç. Dr. Şebnem Özdemir and Doç. Dr. Barış Özçelik, our AIPA Assistant Secretary General İrem Sezer and our AIPA Executive Assistant for enabling the conduct of such a critical and comprehensive research.

Kind regards.

Zafer Küçükşabanoğlu

Artificial Intelligence Policies Association (AIPA) Founder and Chairman



Zafer Küçükşabanoğlu - Artificial Intelligence Policies Association (AIPA) Founder and Chairman

Gökhan Varan - Artificial Intelligence Policies Association (AIPA) Vice Chairman

Volkan Kılıç - Artificial Intelligence Policies Association (AIPA) Vice Chairman & Founder of Kuantum Araştırma

Dr. M. Umut Demirezen - Artificial Intelligence Policies Association (AIPA) Vice Chairman

Hilal Numanoğlu - Artificial Intelligence Policies Association (AIPA) Secretary General

Abdulkadir Özbek - Artificial Intelligence Policies Association (AIPA) Board Member

Doç. Dr. Şebnem Özdemir - Artificial Intelligence Policies Association (AIPA) Board Member

Doç. Dr. Barış Özçelik - Artificial Intelligence Policies Association (AIPA) Board Member

İrem Sezer - Artificial Intelligence Policies Association (AIPA) Assistant Secretary General

Merve Yıldırım - Artificial Intelligence Policies Association (AIPA) Executive Assistant

Murat Ünsal - Kuantum Araştırma Marketing Director



## Our Memberships and Quality Certificates



Kuantum Araştırma conducts researches in accordance with international standards and procedures determined for market researches.

Kuantum Araştırma manages the research processes by respecting the statistics, without compromising on quality and scientific methods.



Kuantum Araştırma is a member of Turkish Researchers' Association, has Trustworthy Research Certificate (GAB 2020-2021), ISO 20252 Certificate of Quality, ISO 27001 Information Security Certificate and ISO 9001 Quality Management System Certificate.





**Methodology**



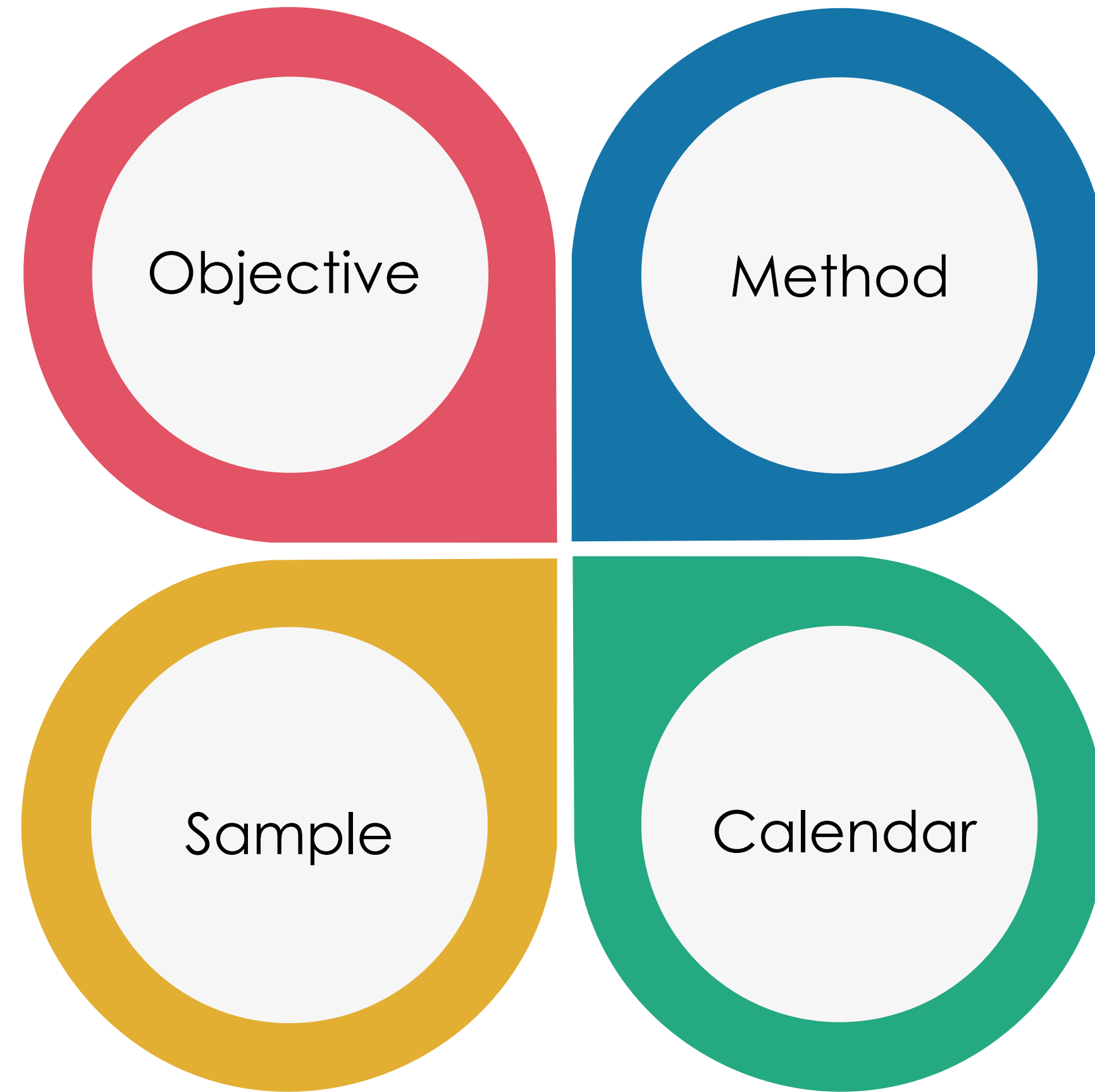


To investigate and analyze teachers' and students' perception on artificial intelligence in education.

With Kuantum's Static Compare model, a one-to-one comparison is made by interviewing teachers, students and school managers of the same school.

In the scope of the research;

A total of 480 people, including 30 school owners/managers, 150 teachers, and 300 students, are interviewed.

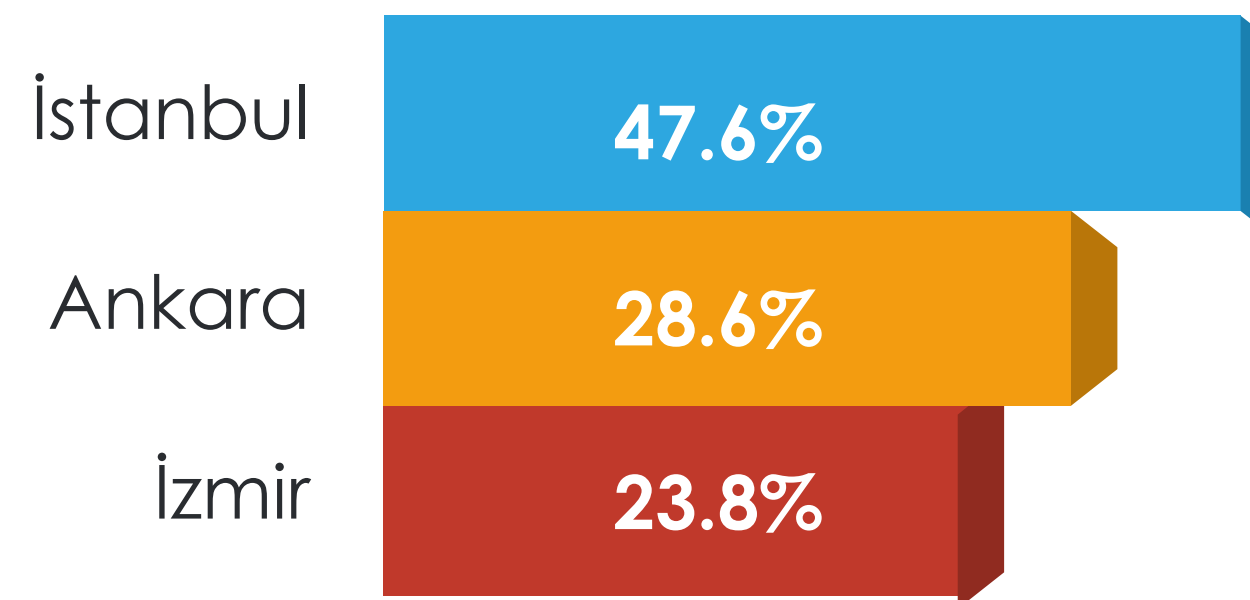
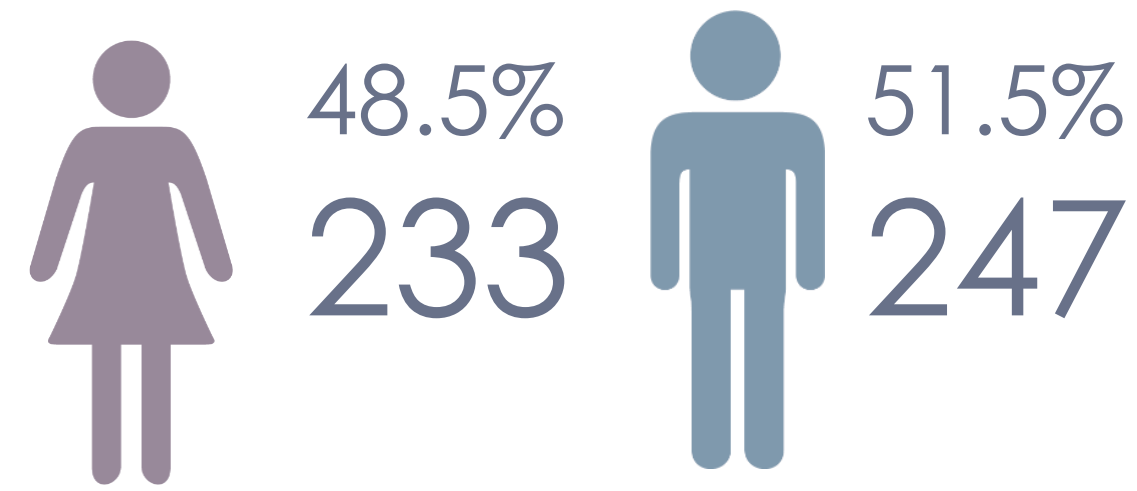


Quantitative Research  
CAWI (Computer Assisted Web Interview)

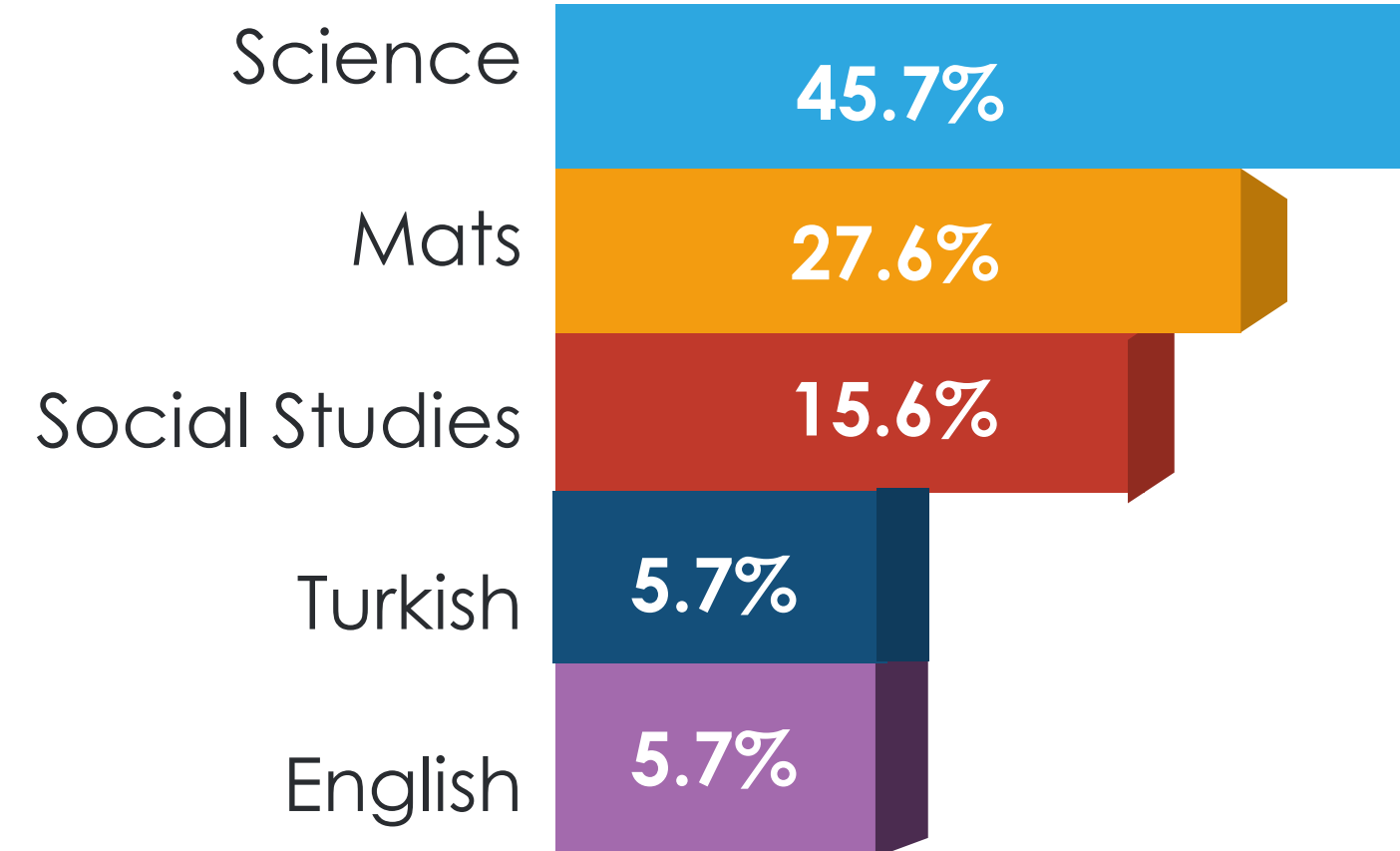
**Data Collection**  
September 1 – 21, 2022

**Data Control**  
September 20 – 22, 2022

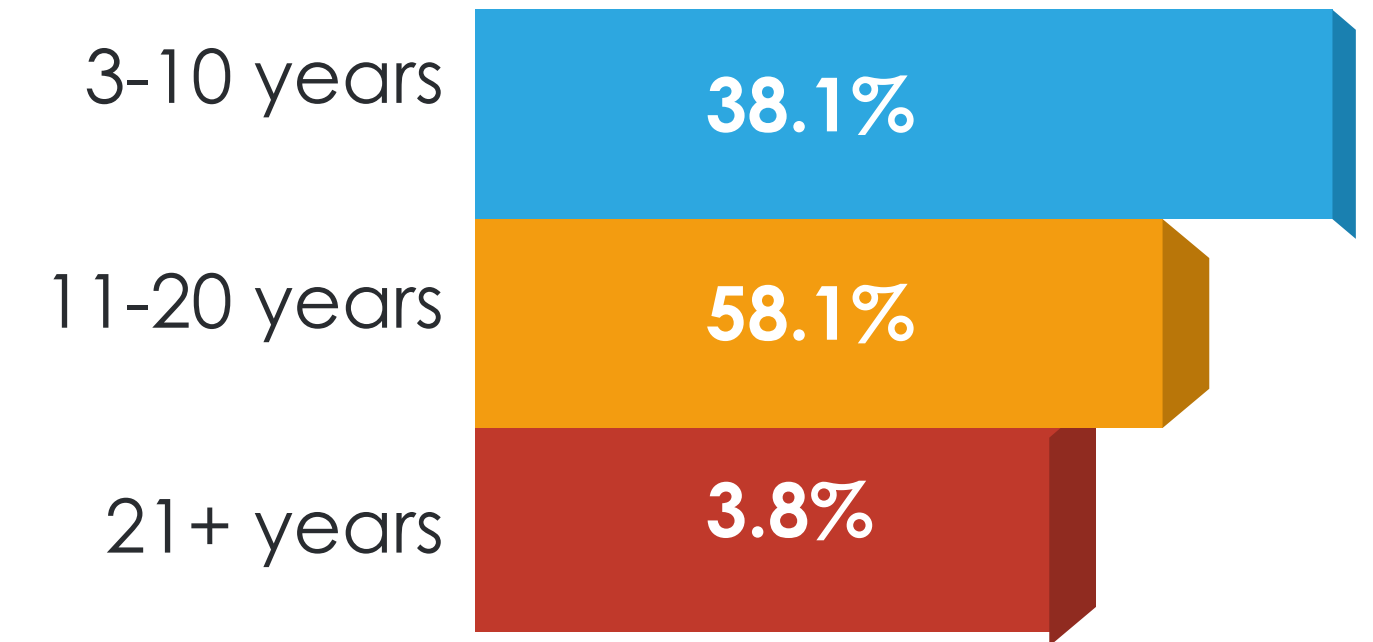
**Analysis and Reporting**  
October 03 – 05, 2022



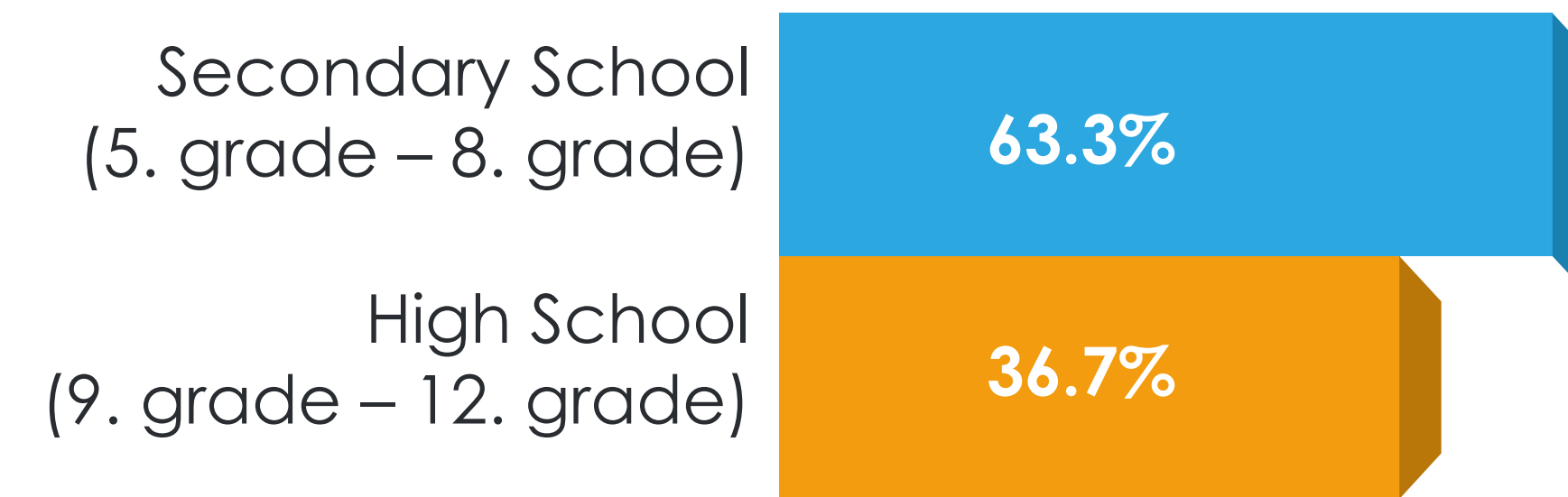
## Teacher's Branch



## Teacher's Experience

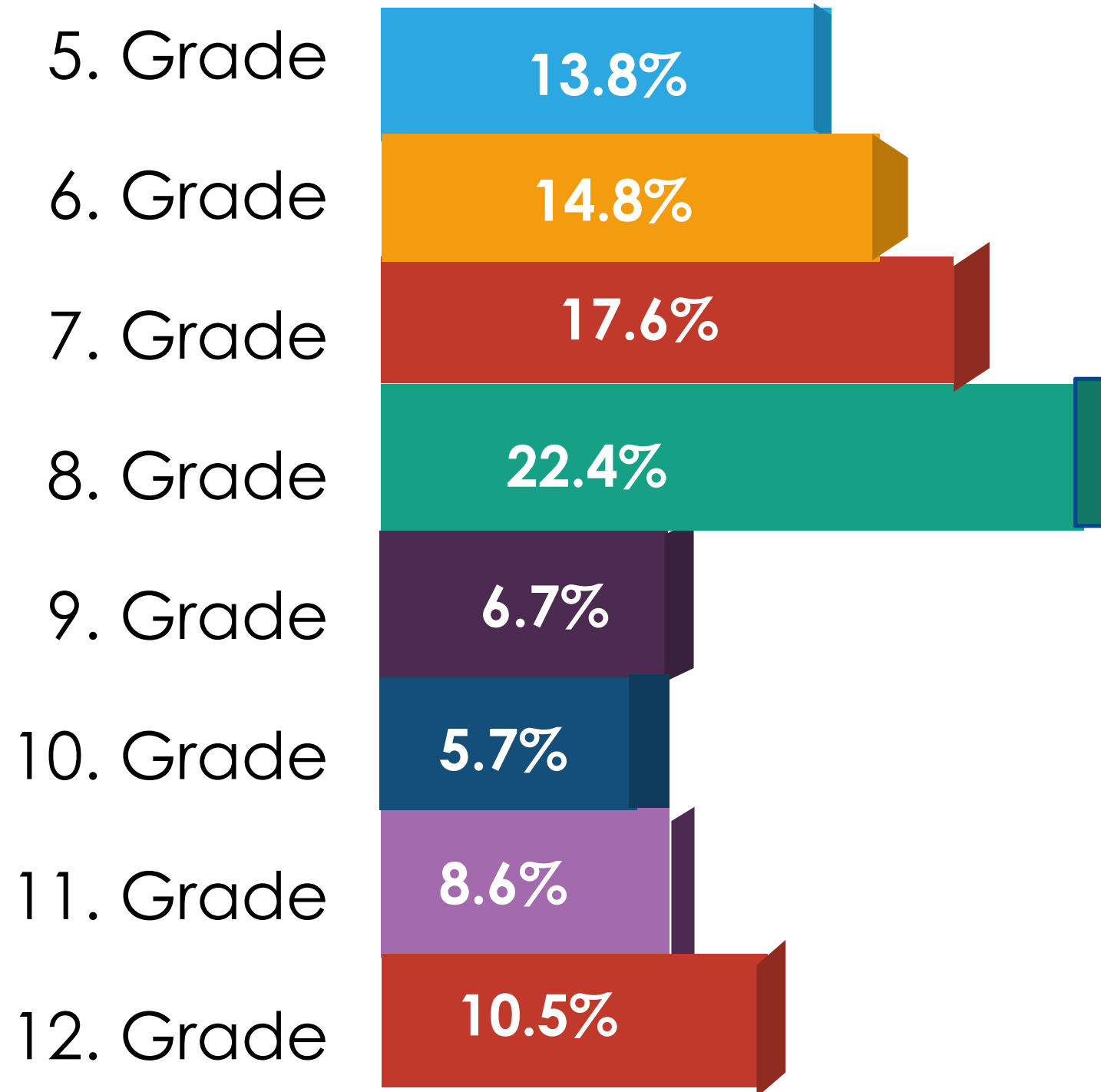


## Teacher's Grade Level

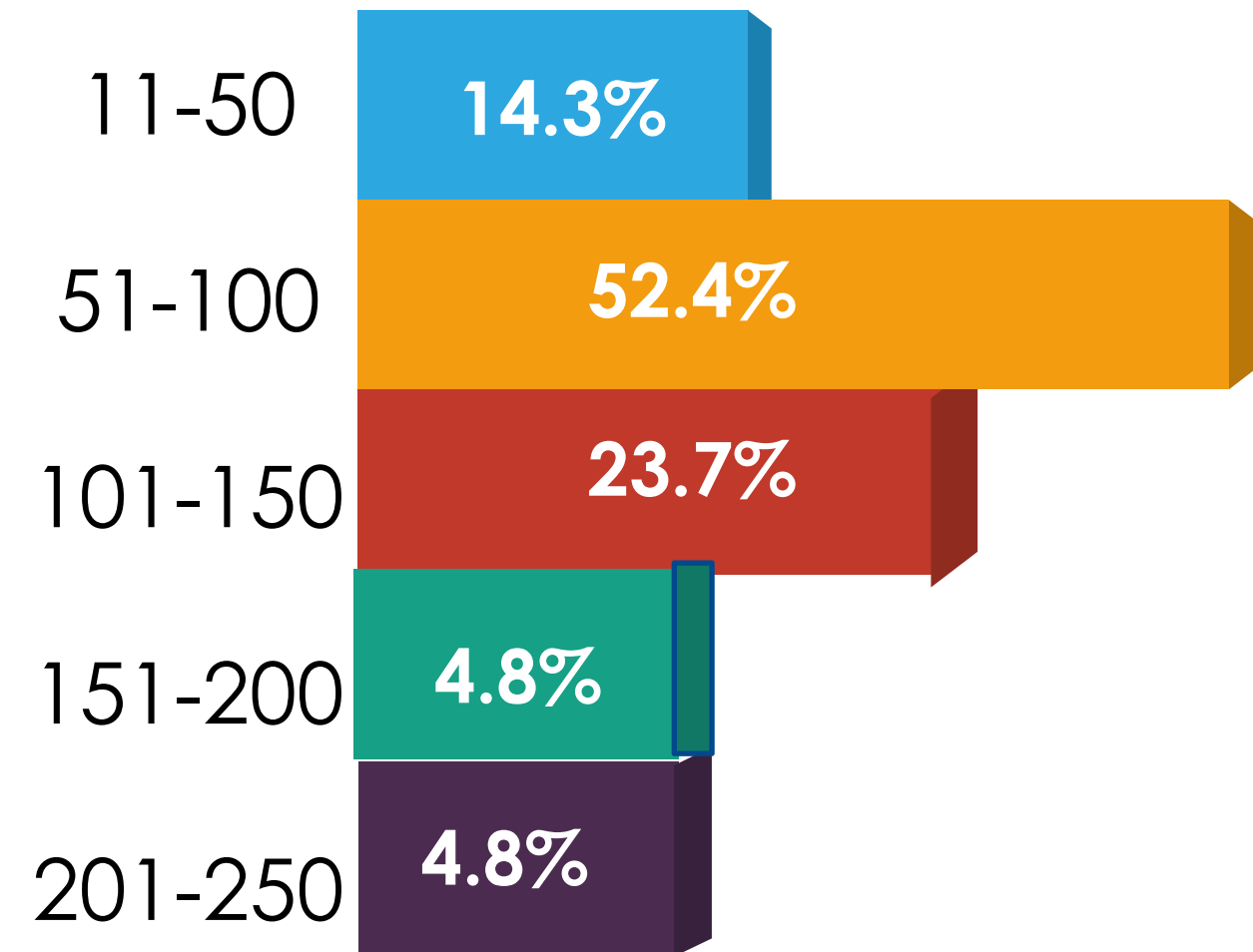




## Student's Grade Level



## Number of Employees



	Managers	Teachers	Students
--	----------	----------	----------

10 -14 Years Old	-	-	73.3%
15 -18 Years Old	-	-	26.2%
19 -24 Years Old	-	2.1%	0.5%
25 -34 Years Old	4.8%	32.6%	-
35 -44 Years Old	57.1%	57.4%	-
45 -54 Years Old	38.1%	7.9%	-



# General Evaluation of Artificial Intelligence Perception in Education



# Artificial Intelligence Perception in Education

In your opinion, what is artificial intelligence?



## In General

## School Owners/Managers

## Teachers

## Students

Computer programs / Controlled by computers / A type of intelligence developed with computer technology / Algorithmic

10.9%

10.2%

12.3%

10.4%

Self-learning, decision-making computer program, robot / Machines thinking or making decisions on their own

9.9%

14.3%

6.5%

11.4%

Computer imitating human / Human intelligence coded into computer / Next generation of humanity / Technology impersonating human

9.7%

4.1%

16.1%

6.8%

Robots / Robotization / Robot intelligence / Electronic robots close to human mind

6.7%

10.2%

3.1%

8.3%

An invention that makes people's lives easier

6.0%

4.1%

5.0%

6.5%

Technology / The new state of technology

5.9%

2.0%

5.4%

6.2%

A structure made by humans / Science made by humans

5.0%

6.1%

3.8%

5.5%

Machine learning / Human-like machines

4.9%

12.2%

8.0%

3.5%

n:480 No Answer: 34.5%

n:30 No Answer: 36.7%

n:150 No Answer: 36.4%

n:300 No Answer: 33.5%

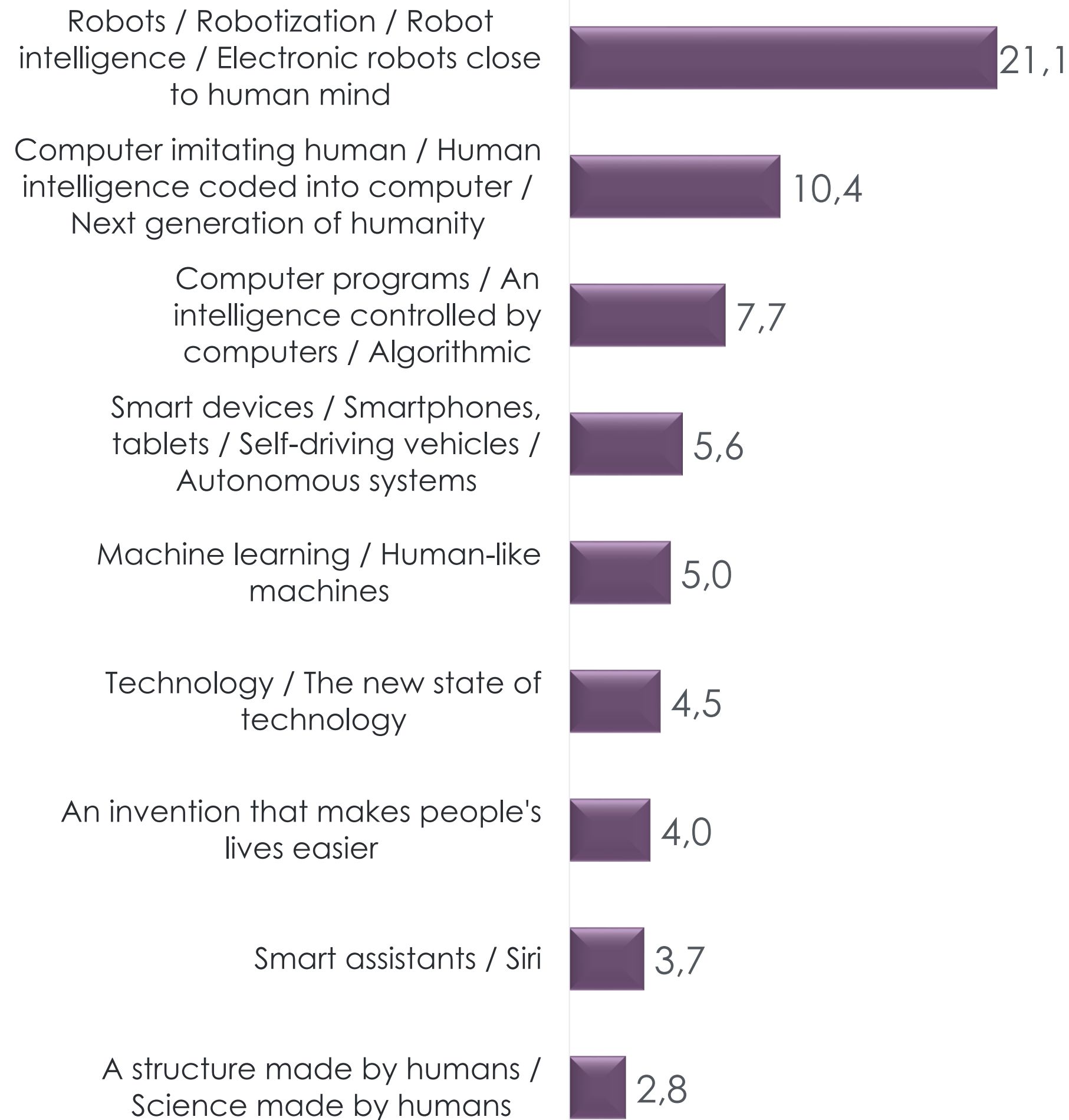


# Artificial Intelligence Perception in Education

In your opinion, what is artificial intelligence?

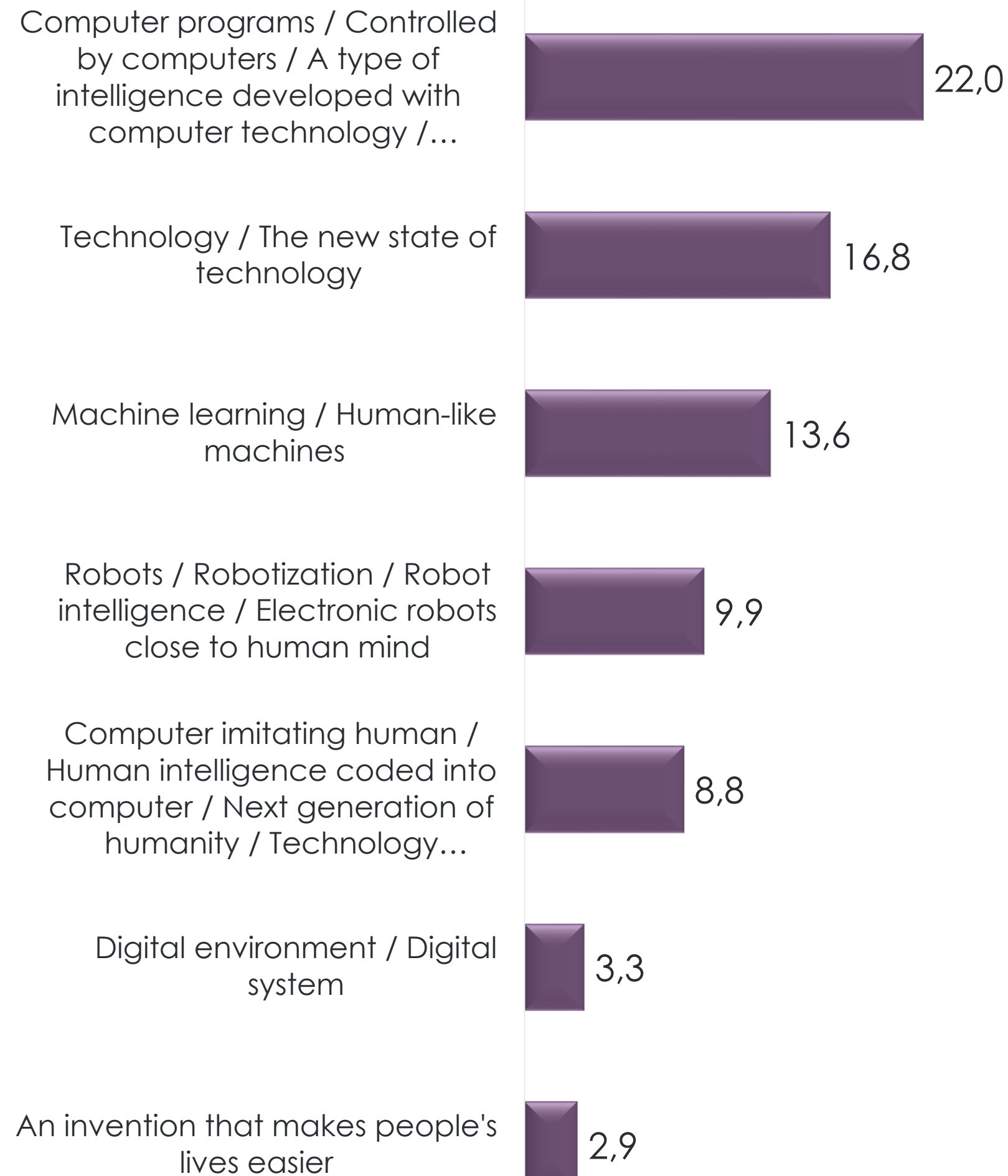


## Society



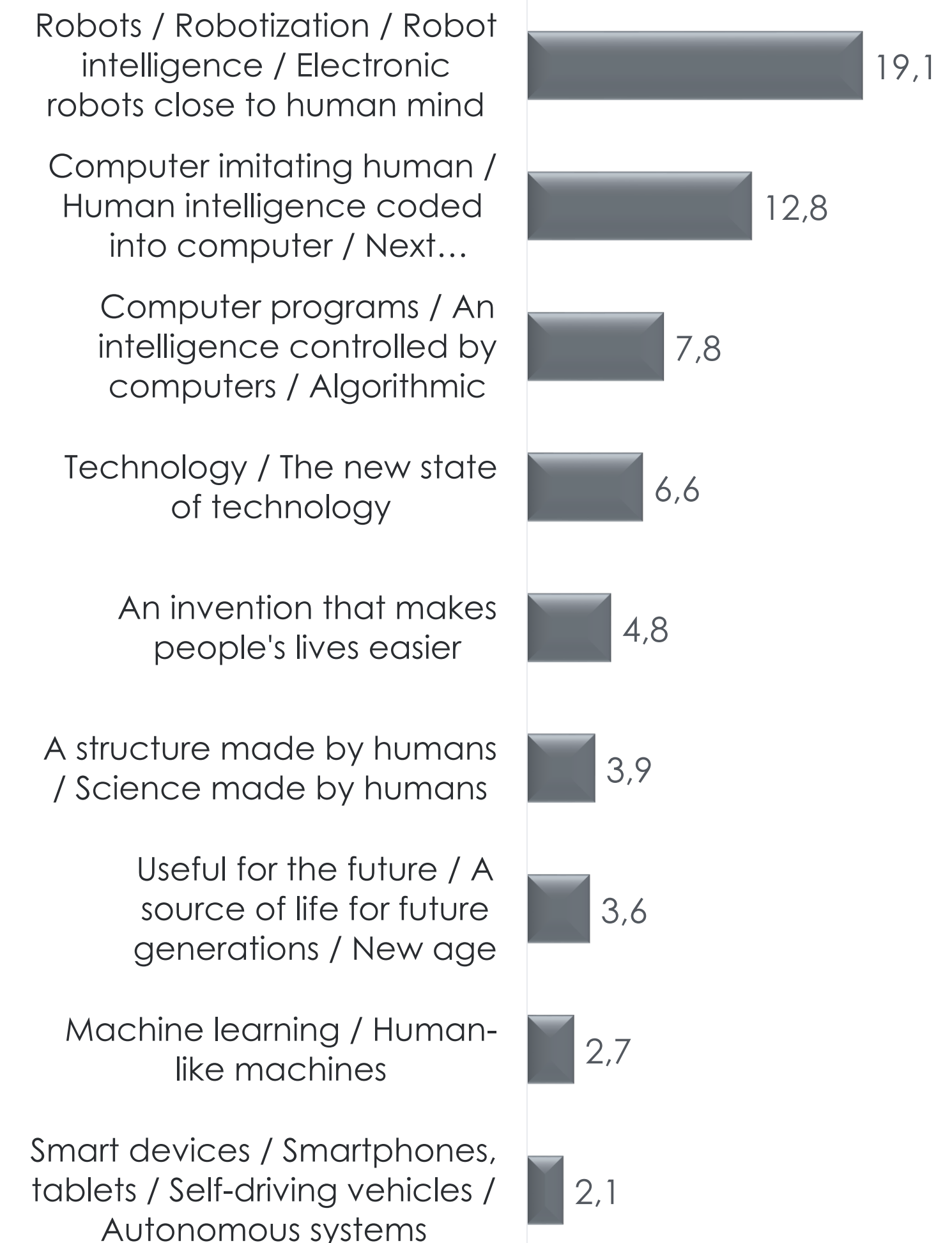
n:1135 No Answer: 1.1%

## Establishments



14 n:847 No Answer: 12,8%

## Students



n:335 No Answer: 0,3%



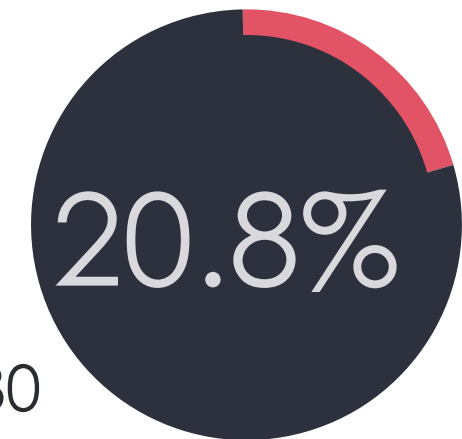
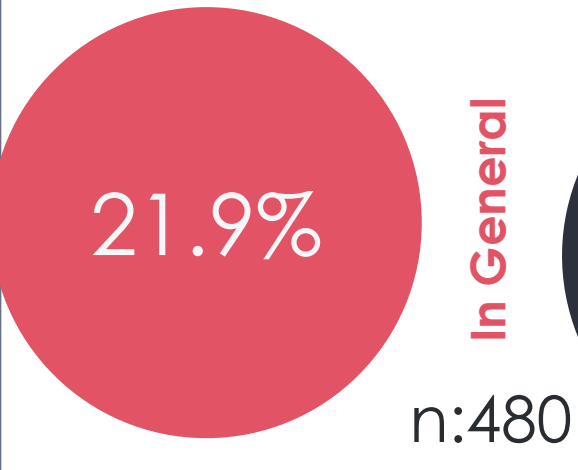
# Artificial Intelligence Perception in Education

- Are you afraid of artificial intelligence in general?
- To what extent are you afraid of artificial intelligence?
- Would you please indicate your reasons for your fear of artificial intelligence?

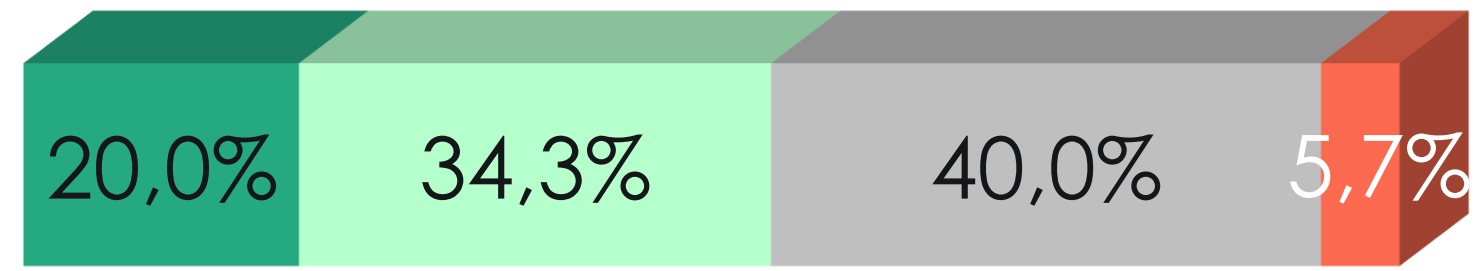


## Society

### Fear of Artificial Intelligence



### Degree of Fear of Artificial Intelligence



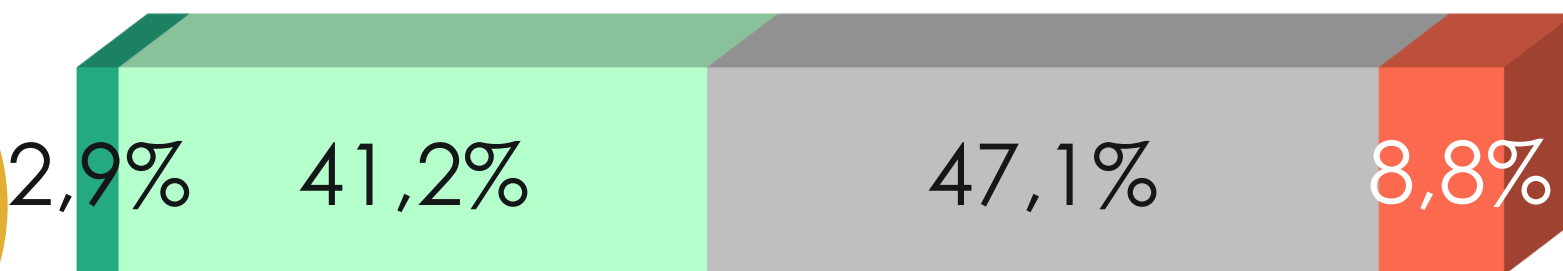
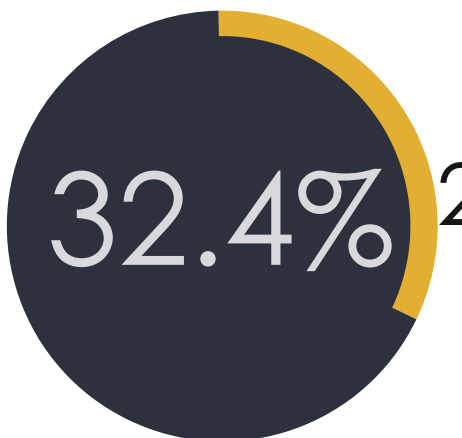
I'm a little scared 2 3 4 I'm too scared

## School Owners/Managers



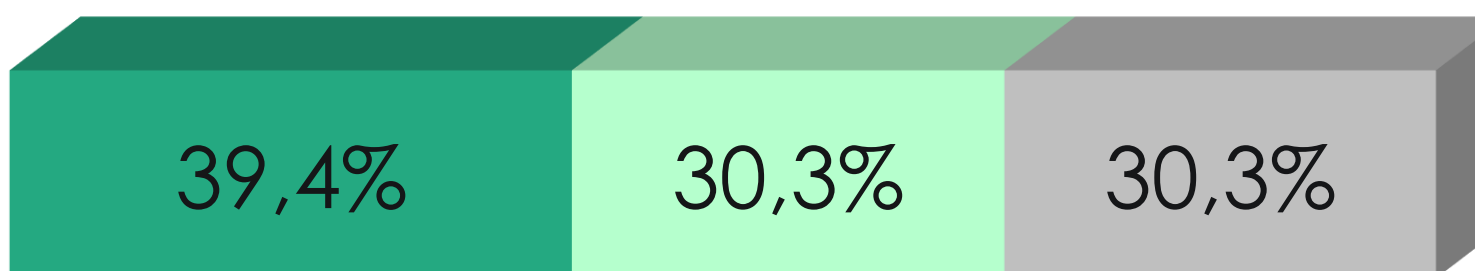
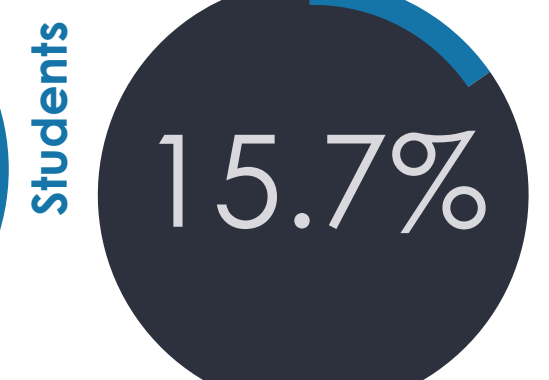
I'm a little scared 2 3 4 I'm too scared

## Teachers



I'm a little scared 2 3 4 I'm too scared

## University Students



I'm a little scared 2 3 4 I'm too scared

### Reasons for Fear of Artificial Intelligence

	In General	Managers	Teachers	Students
It is possible for something produced by man to have the ability to seize man / They can invade / It can get out of control	40.6%	66.7%	36.8%	40.0%
Artificial / Man-made / Emotionless	12.5%	-	5.3%	30.0%
Decreased job opportunities / Increasing unemployment / Robots doing our work	12.5%	33.3%	15.8%	-
Human replacement / End of humanity	12.5%	-	15.8%	10.0%
Abuse / Use for benefits / Brainwash	15.8%	-	15.8%	-
They're in everything / They manage us / They are bugging us / Personal information is more accessible	6.3%	-	5.3%	10.0%
Unknown / I don't know anything about it / Uncertainty / Something new	5.3%	-	5.3%	-
Alienating people from their culture	10.0%	-	-	10.0%



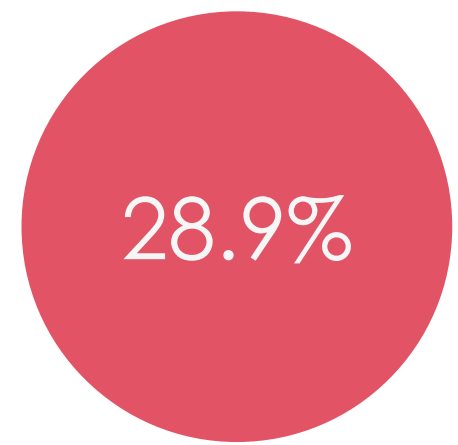
# Artificial Intelligence Perception in Education

• Do you want to be interested in artificial intelligence in the future?

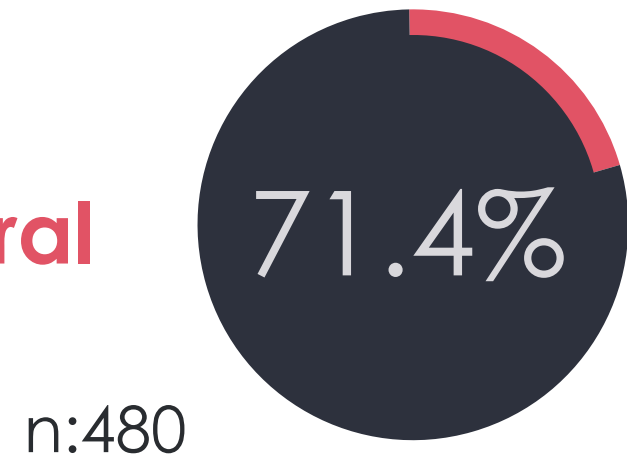


## Interest in Artificial Intelligence in the Future

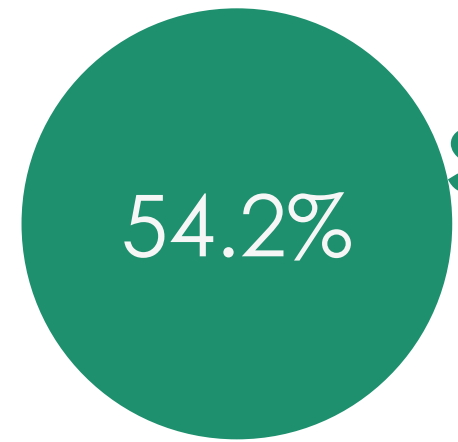
Society



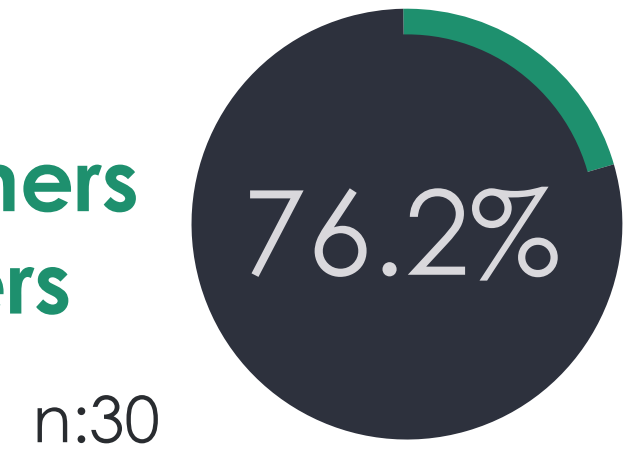
In General



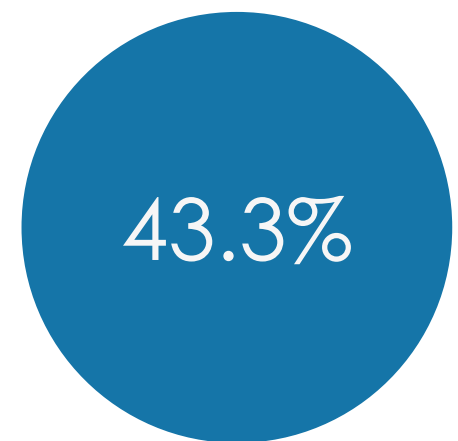
Establishments



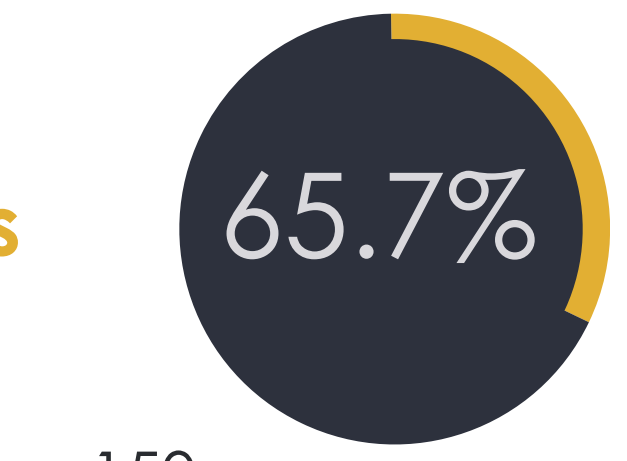
School Owners / Managers



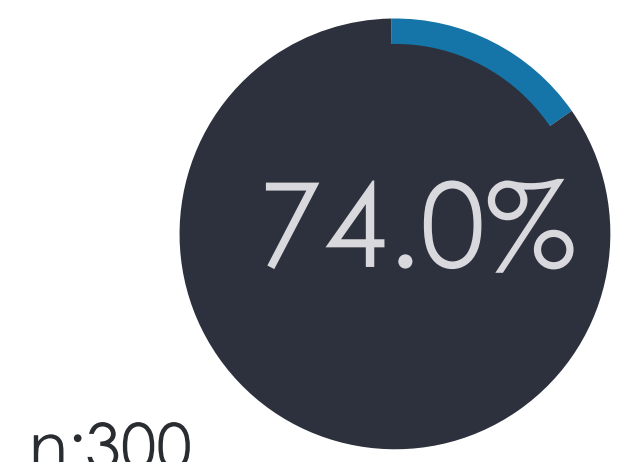
University Students



Teachers

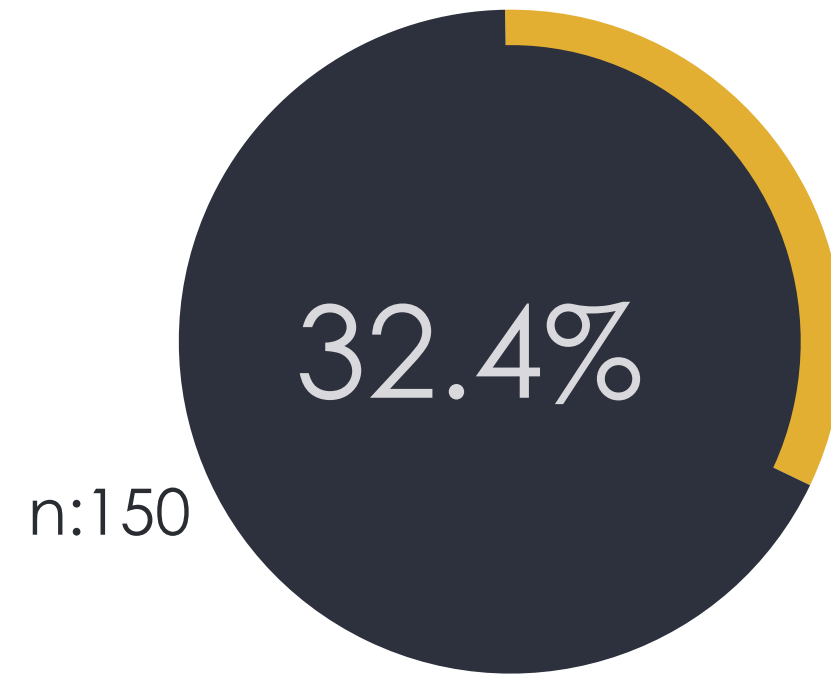


Students

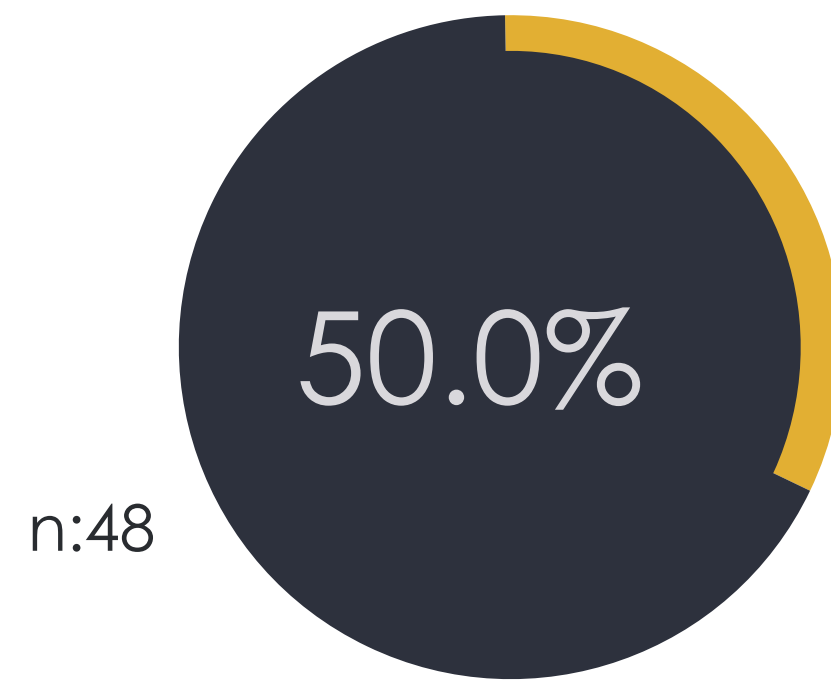


## Teachers

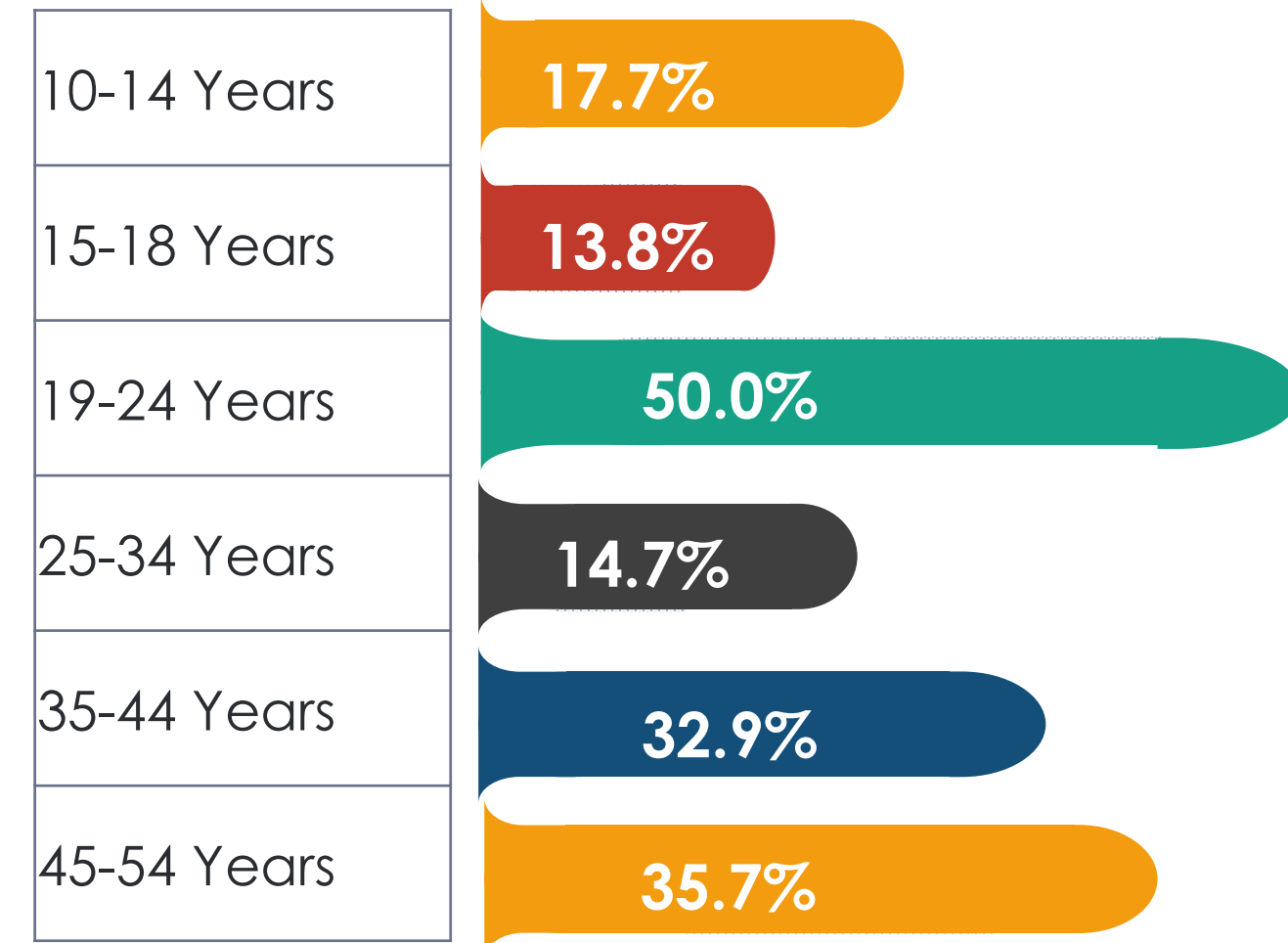
Fear of Artificial Intelligence



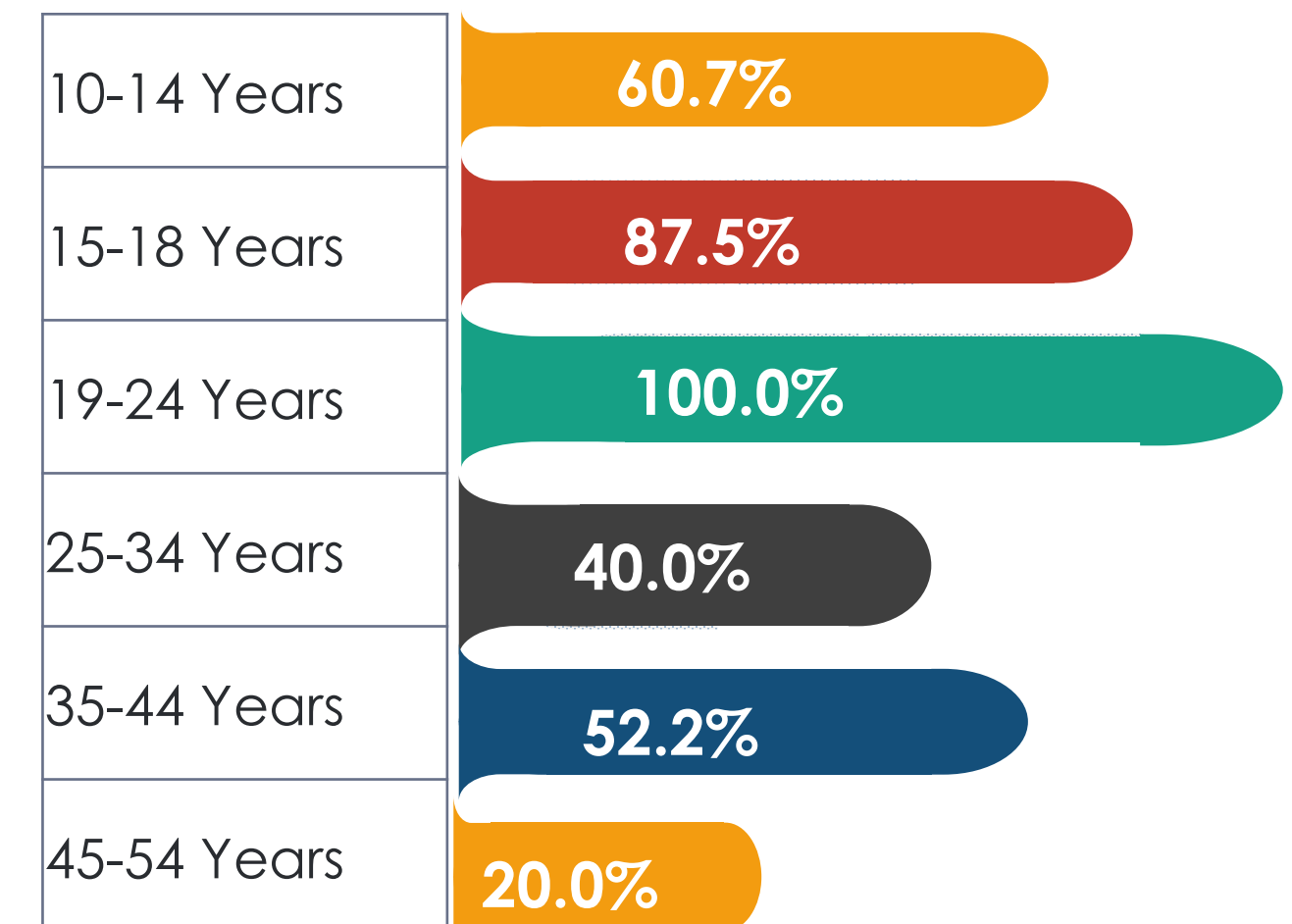
Interest in Artificial Intelligence in the Future



## Fear of Artificial Intelligence



## Interest in Artificial Intelligence in the Future







# Artificial Intelligence Perception in Education

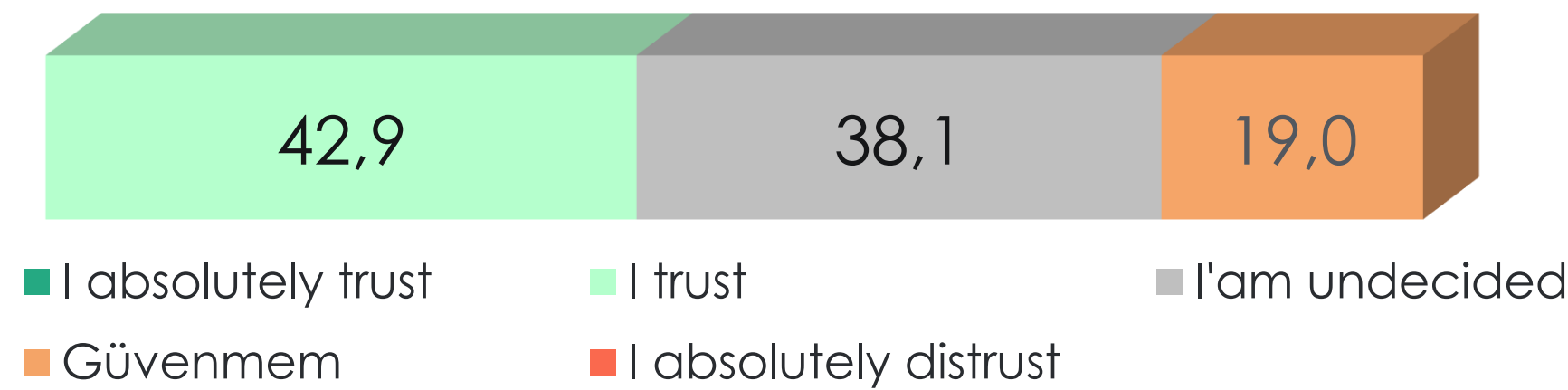
- Do you have trust in Artificial Intelligence based/focused products?
- You've stated that you do not trust AI-based/focused products. Would you please indicate your reasons?
- You've stated that you trust AI-based/focused products. Would you please indicate your reasons?



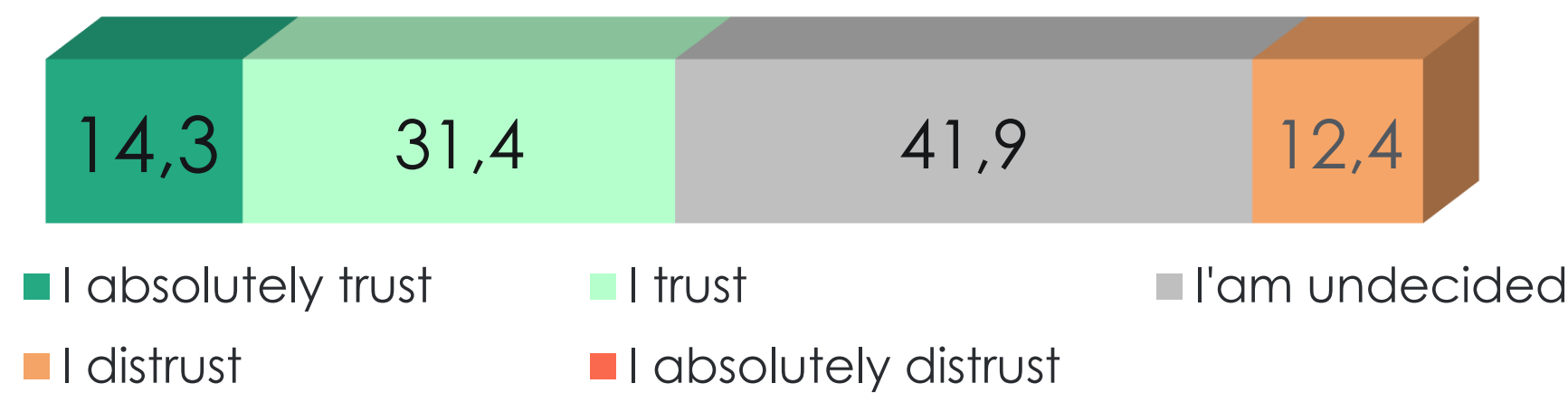
## In General



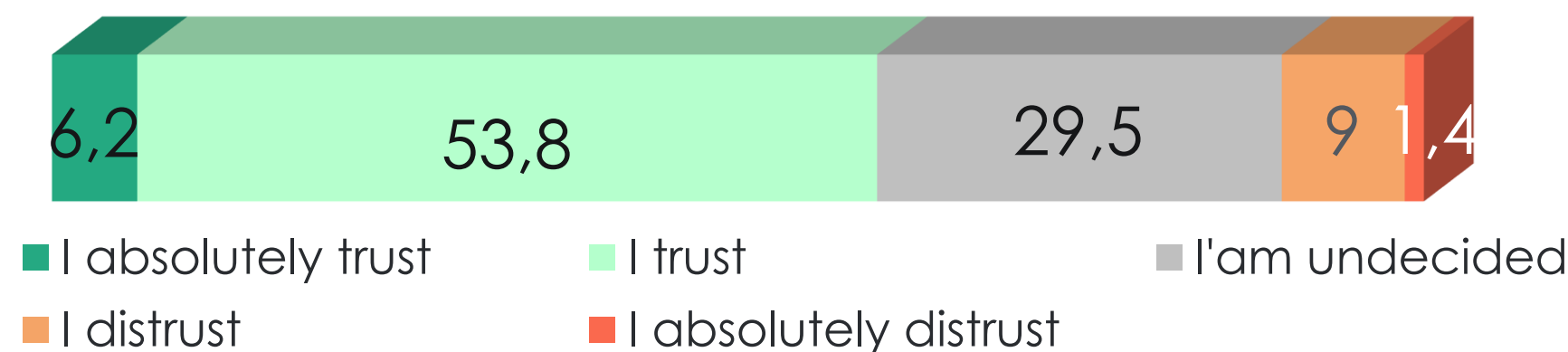
## School Owners / Managers



## Teachers



## Students



## Reasons to Distrust - In General

I don't trust robots / After all, it is a robot, it can't do everything / Makes mistakes	43.6
Dangerous	17.9
It can't make decisions because it has no feelings / No moral values	12.8
There might be a security gap	12.8
Because it's artificial / As it is called / Man-made	7.7
Transcending the intelligence structure of people and creating a new space for themselves	5.1

## Reasons to Trust - In General

Because it is systematic / Because it has a proven and determined algorithm / Acting only on the processed information	26.6
Will provide convenience / Will make life easier	24.5
Low error rate / Has fewer faults / Safer than humans	16.9
Because it has passed adequate tests / Precautions have been taken	10.1
I trust it because of simple applications that I already use and am satisfied with	3.8
Sounds reliable / I see no reason not to trust	3.4
Because it will speed up the process / Save time	3.0
I trust technology	0.8

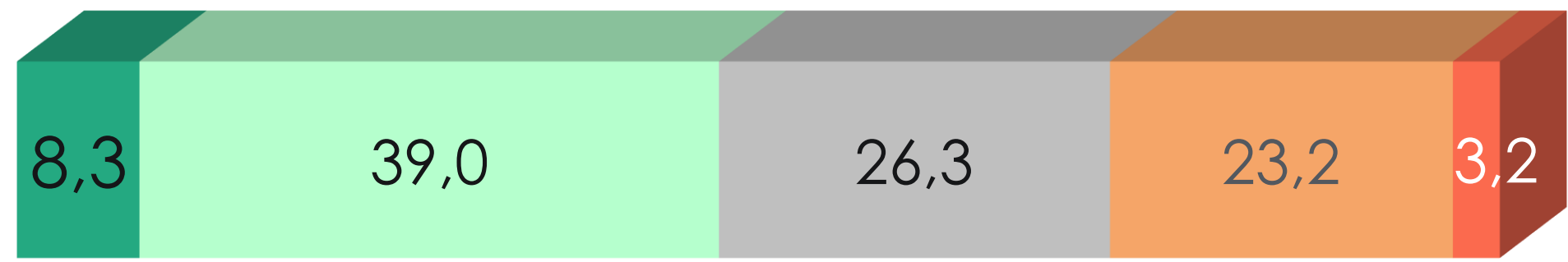


# Artificial Intelligence Perception in Education

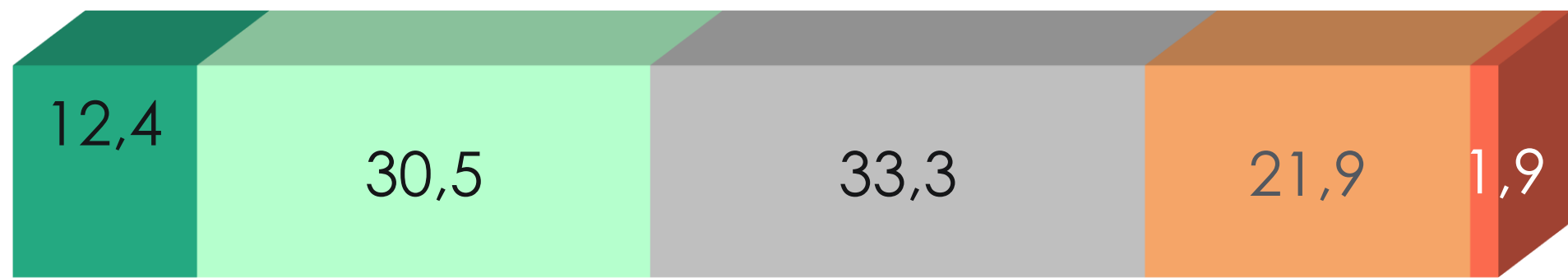
- Do you think that artificial intelligence will ever pose a threat to human intelligence?
- What will be the way of teaching when supported by artificial intelligence?



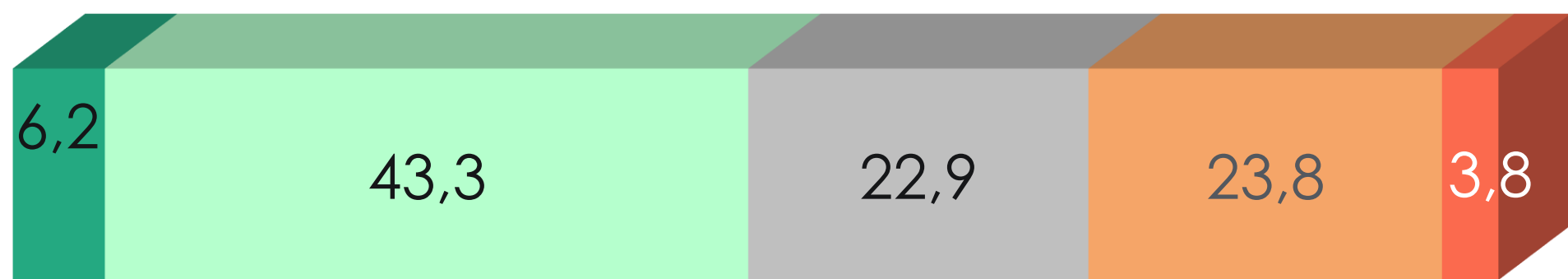
## The Thought that Artificial Intelligence Will Become a Threat to Human Intelligence



- I definitely think
- I think
- I'm undecided
- I don't think
- I definitely don't think



- I definitely think
- I think
- I'm undecided
- I don't think
- I definitely don't think



- I definitely think
- I think
- I'm undecided
- I don't think
- I definitely don't think

### In General

n:450

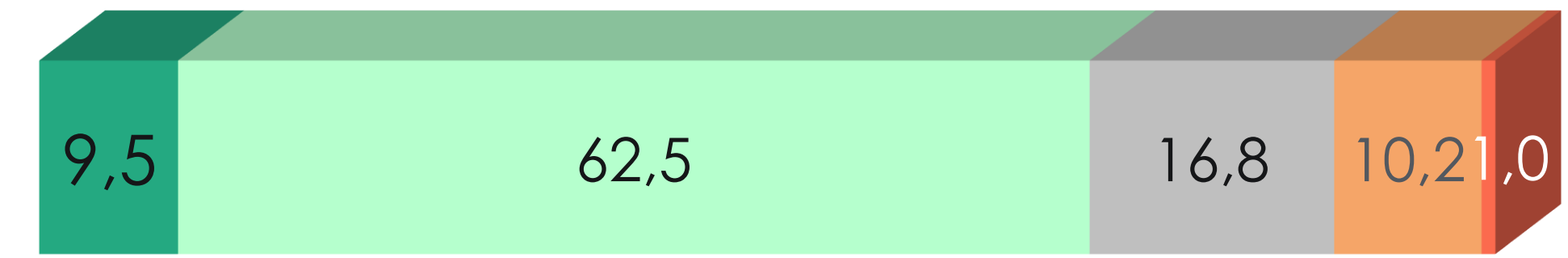
### Teachers

n:150

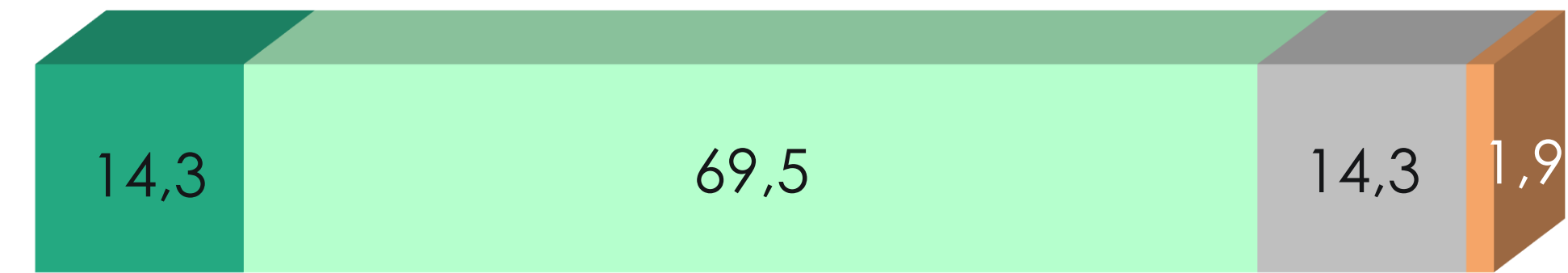
### Students

n:300

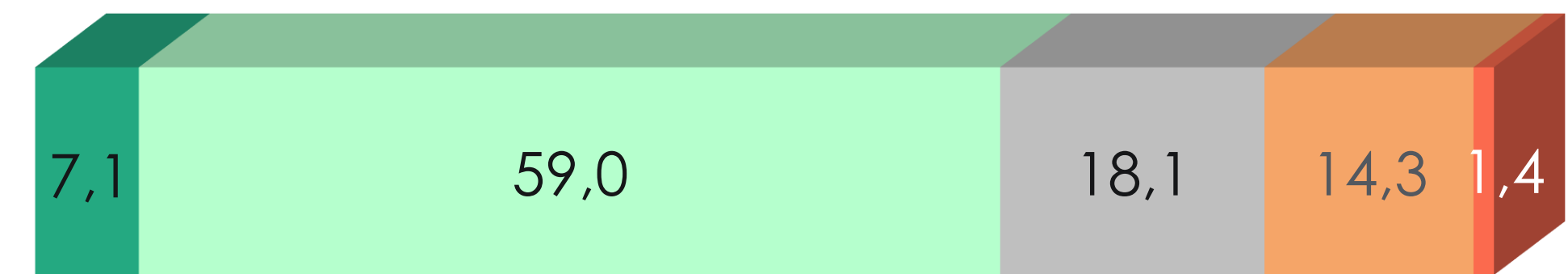
## Teaching Style Supported by Artificial Intelligence



- Definitely more successful
- Successful
- I'm undecided
- Unsuccessful
- Definitely more unsuccessful



- Definitely more successful
- Successful
- I'm undecided
- Unsuccessful
- Definitely more unsuccessful



- Definitely more successful
- Successful
- I'm undecided
- Unsuccessful
- Definitely more unsuccessful



# Artificial Intelligence Perception in Education

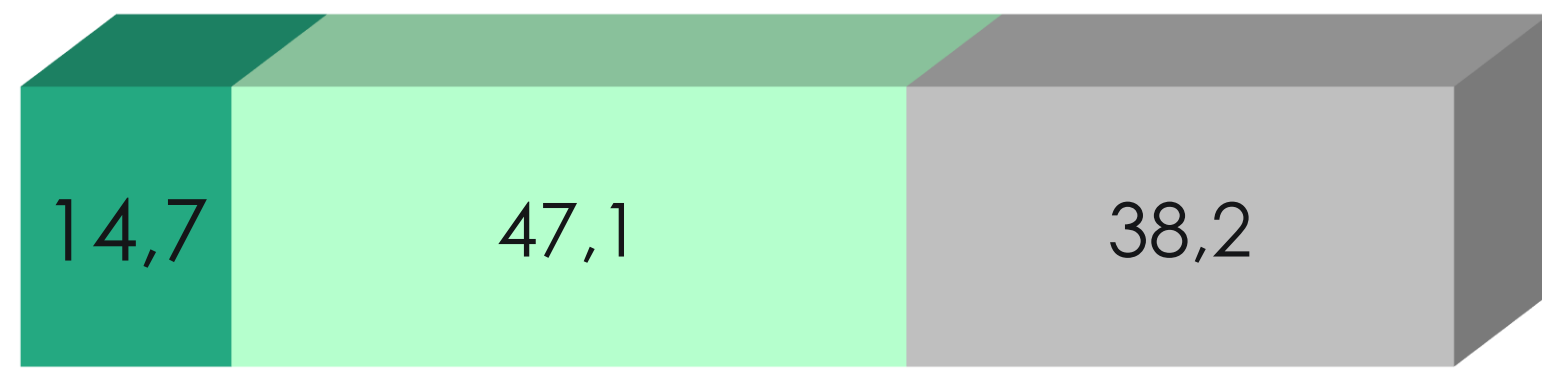
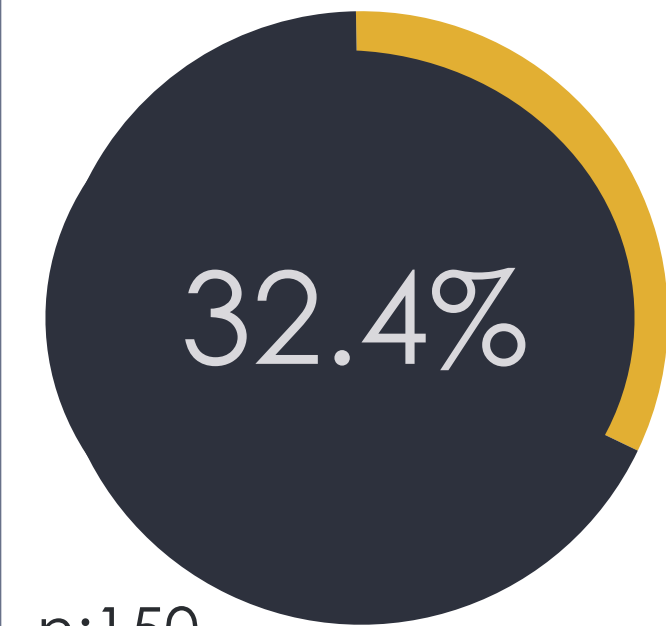
- Do you think that artificial intelligence will ever pose a threat to human intelligence?
- What will be the way of teaching when supported by artificial intelligence?



## Fear of Artificial Intelligence

## Teaching Style Supported by Artificial Intelligence

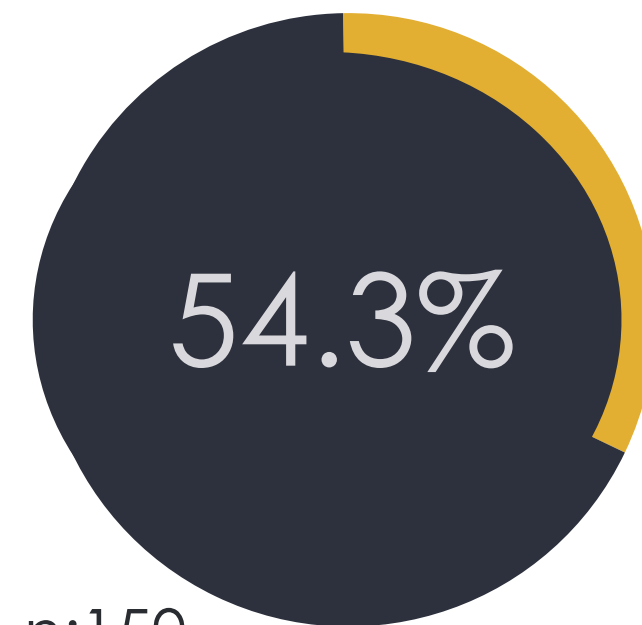
### Teachers



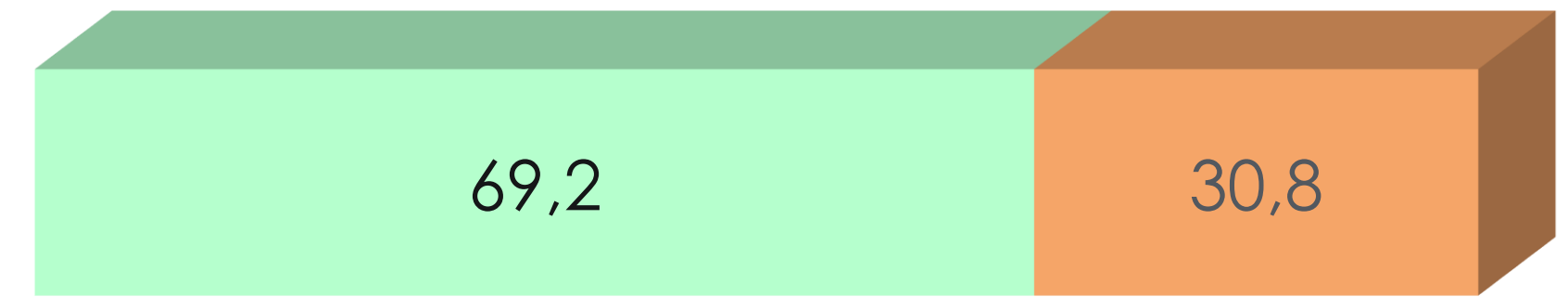
- Definitely more successful
- Successful
- I'm undecided
- Unsuccessful
- Definitely more unsuccessful

## Distrust to AI-Based/ Focused Products

### Teachers

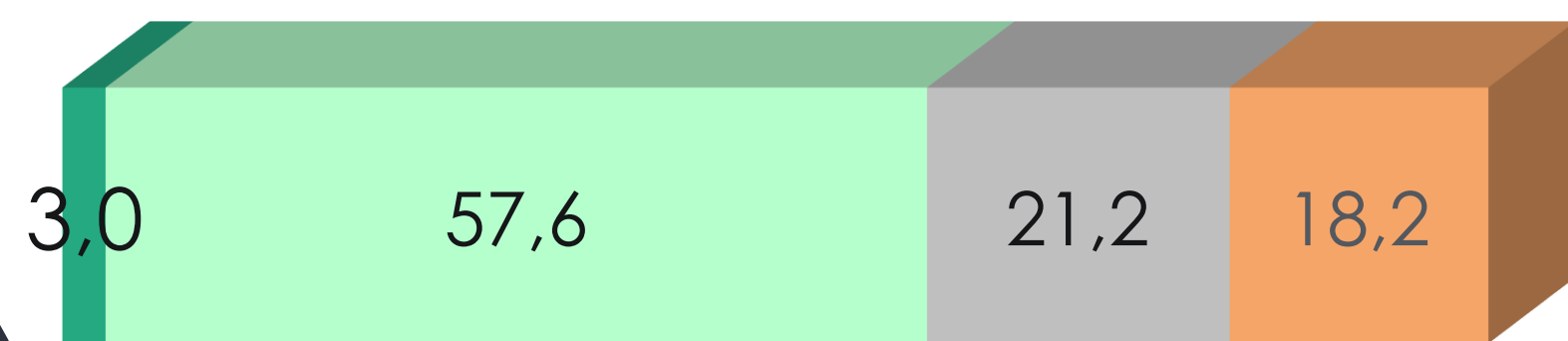
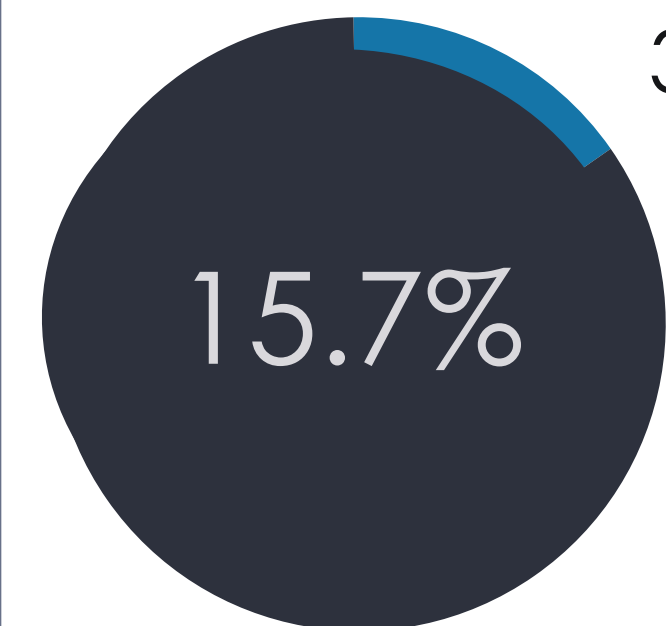


## The Thought that Artificial Intelligence Will Become a Threat to Human Intelligence



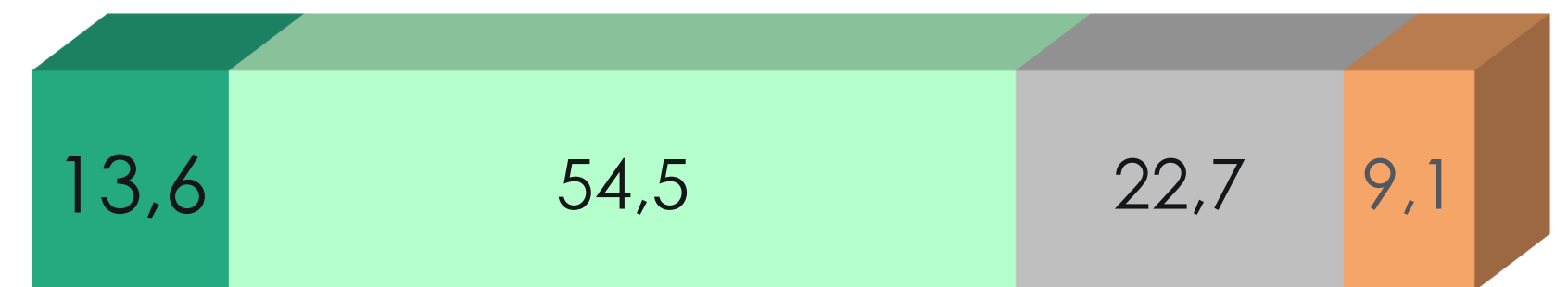
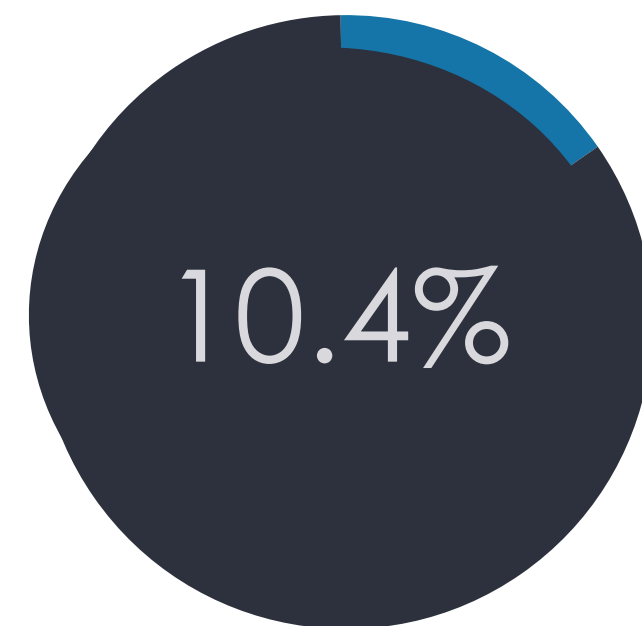
- I definitely think
- I think
- I'm undecided
- I don't think
- I definitely don't think

### Students



- Definitely more successful
- Successful
- I'm undecided
- Unsuccessful
- Definitely more unsuccessful

### Students



- I definitely think
- I think
- I'm undecided
- I don't think
- I definitely don't think

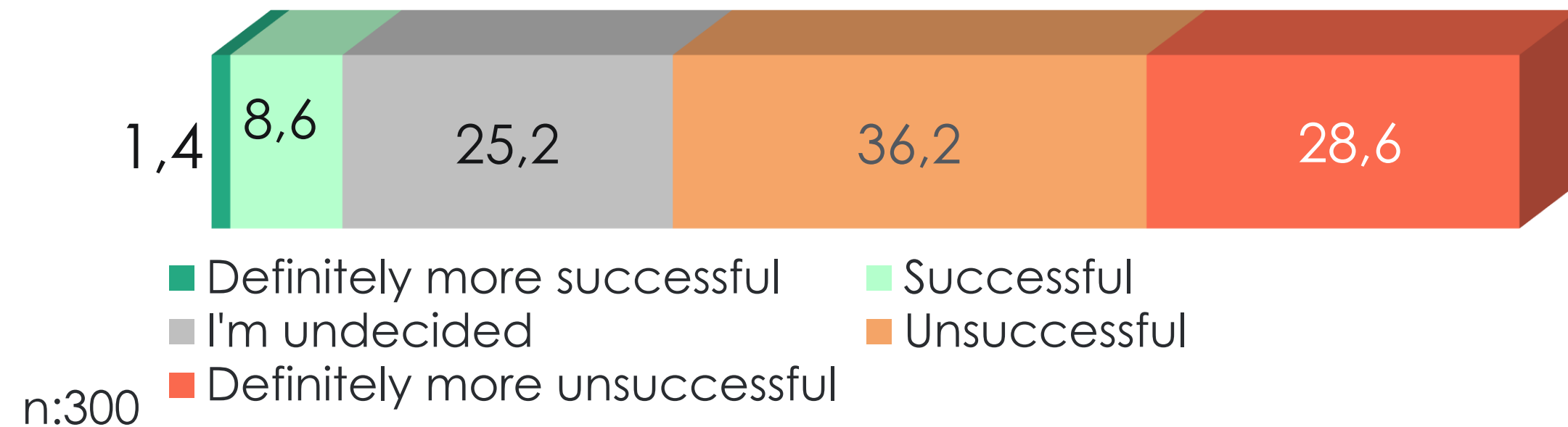


# Artificial Intelligence Perception in Education

- Imagine a classroom with only artificial intelligence and no teachers. how would it be?
- How would the teaching style be if traditional classroom teachers were completely replaced by virtual human facilitators (robots)?
- What are the key qualities you expect a teacher to have?



## Students A Classroom Functioning with Artificial Intelligence without a Teacher



### Key Qualities Expected from a Teacher

	Students
Teaches the lesson well	28.8%
Has a good communication	14.4%
Has a good command of the subjects / Qualified	10.0%
Prepares for social life	8.2%
Enjoyful and funny	6.5%
Helpful	3.2%
Fair	2.6%
Disciplined	2.6%
Understanding	2.4%
Has ability to empathize	2.1%
Adjust the amount of homework	2.1%
Respectful	2.1%

### Teaching Style in Case of Virtual Human Facilitator (robot) Instead of Classroom Teachers

	School Owners /Managers	Students
Emotionless/Soulless	63.6%	43.9%
Only as an auxiliary	18.2%	2.1%
Insufficient	9.1%	7.6%
Boring	4.5%	3.4%
Better	4.5%	3.0%
Bad	-	21.5%



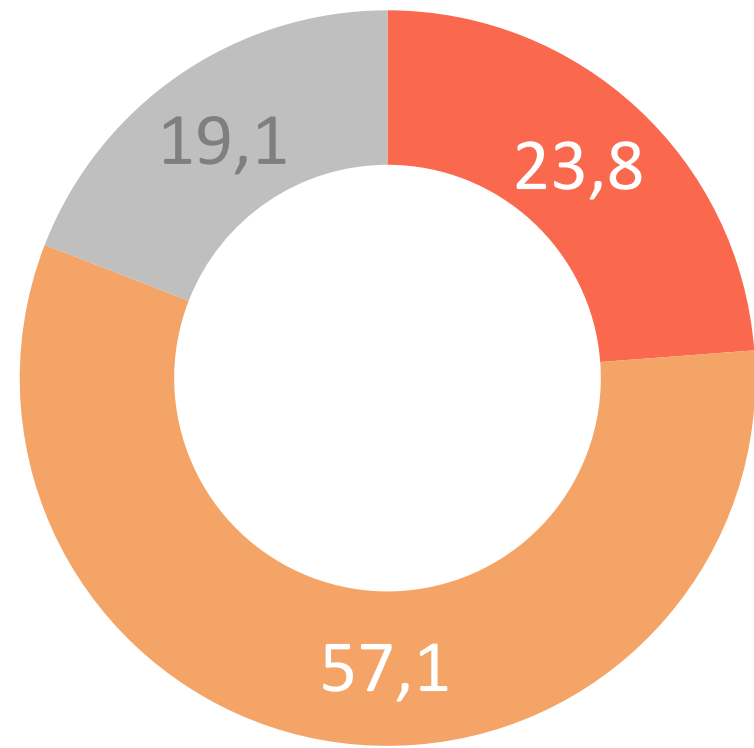
# Artificial Intelligence Perception in Education

- Have you ever used an AI-based/focused product in your profession?
- What would be the positive aspects of using an AI-based/focused product in your profession?
- What would be the negative aspects of using an AI-based/focused product in your profession?



## Using an AI-Based Product in Occupation

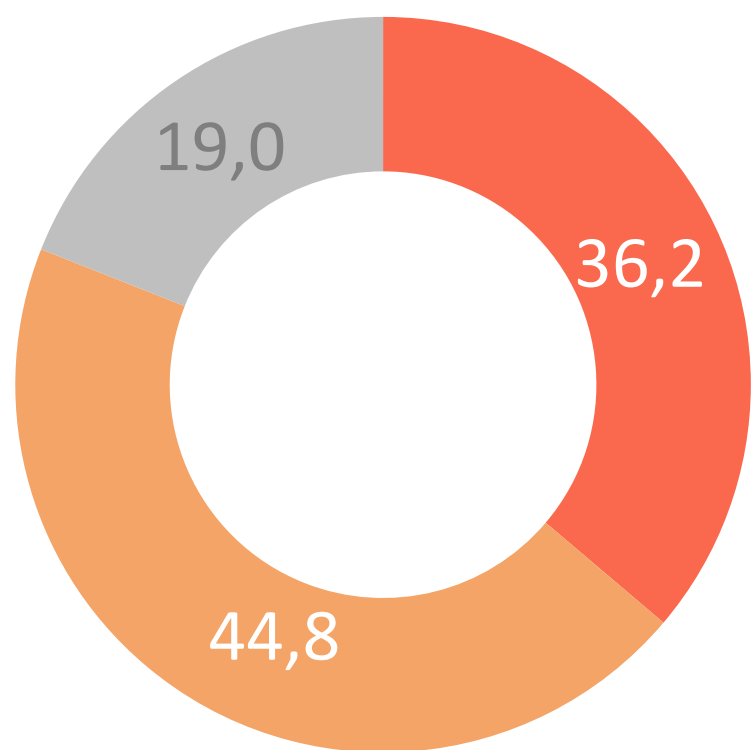
School Owners / Managers



■ Yes ■ No ■ I don't know

n:30

Teachers



■ Yes ■ No ■ I don't know

n:150

## Positive Aspects of Using AI Based/Focused Product

	School Owners /Managers n:30	Teachers n:150
Reduces workload	29.6%	3.7%
Increases in speed / saving time	22.2%	10.3%
Decreases in error rate	14.8%	6.6%
Provides convenience / Helps	7.4%	27.2%
Increases efficiency / success	7.4%	14.0%
May help manage our emotional decisions	7.4%	-
More professional results are achieved	3.7%	-
May give feedback / Improvements can be analyzed	3.7%	2.2%
Provides permanent learning	-	7.4%
Attracts / draws attention	-	8.8%
Abstract concepts become more understandable with visuals	-	8.8%

## Negative Aspects of Using AI Based/Focused Product

	School Owners /Managers n:30	Teachers n:150
Dangerous / Risky / May be abused	28.6%	7.6%
Bad influence on education	19.0%	6.7%
Leads to laziness	14.3%	14.3%
AI will become widespread / It will exist in every field / It will reach everyone	14.3%	-
No need for manpower / Decreases employment / Unemployment increases / Jobs disappear	9.5%	1.0%
Insufficient / Can not replace human / Not efficient	4.8%	6.7%
Negative effects of radiation / Harms nature and agriculture / May damage agricultural lands due to emitted radiation	4.8%	-
Emotional relationships may weaken / Emotional emptiness / Emotions may not be understood	-	20.0%
Since artificial intelligence is not developed in our own country, it will not be very healthy in our country.	-	9.5%



# Artificial Intelligence Perception in Education

- In which areas should artificial intelligence be supported in education?
- How can artificial intelligence support you in education?



## Areas for the Support of Artificial Intelligence

	School Owners / Managers n:30	Teachers n:150
Administrative tasks	61.9%	55.2%
Grading of students' assignments	47.6%	31.4%
Planning the lesson in terms of content	52.4%	67.6%
Planning the lesson in terms of time	42.9%	49.5%
Monitoring and following the Academic Success of Students	100.0%	74.3%
Student coaching, parent counseling, course content tracking	-	2.9%
Lessons suitable for grade levels / solving questions	-	1.0%
Attendance can be fingerprinted at the door	-	1.0%

## AI's Ways of Supporting Education Processes

	School Owners / Managers n:30	Teachers n:150	Students n:300
Finding errors, deficiencies / makes personalized prescriptions	32.0%	20.0%	15.5%
Providing ease of work / Helps	-	16.4%	11.7%
Increasing learning speed / Saves time	-	14.3%	11.3%
Making learning easier	16.0%	9.3%	11.3%
Providing resources / finding s topics, tests on the Internet	8.0%	4.3%	14.7%
Student follow-up / Checking homework	32.0%	15.0%	1.9%
Explaining the contents of the video	-	3.6%	9.4%
Forming daily calendar, study plan	-	12.1%	4.9%
Providing distance education	8.0%	-	8.3%
No support / Negative	-	1.4%	5.3%

# Evaluation of School Owner / Manager



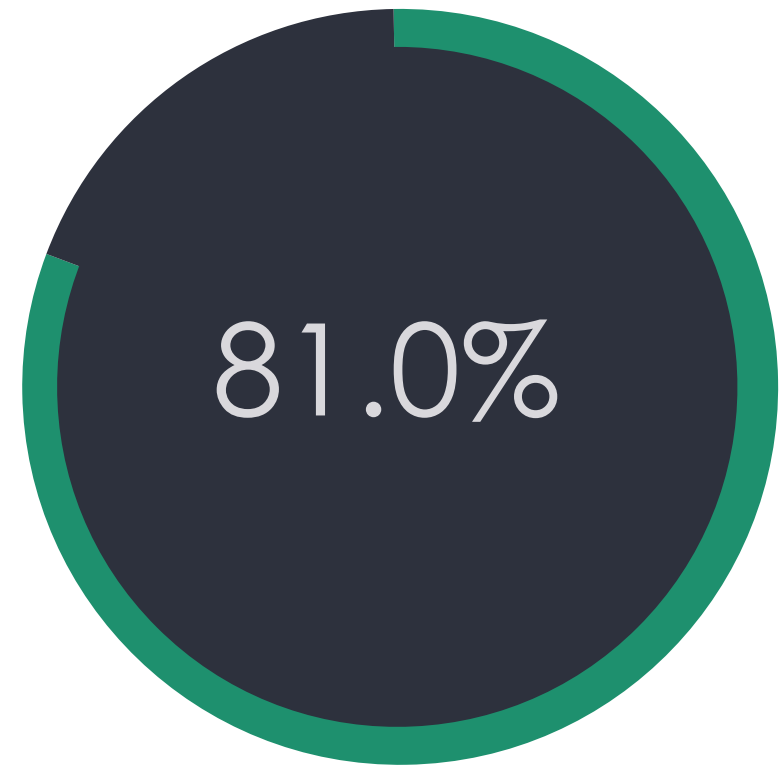


# Artificial Intelligence Perception in Education

- Do you have information technology security systems in your enterprise?
- Do you invest in cyber security infrastructure?
- What are the digital technologies you use in your enterprise?
- Which digital technologies will affect your enterprise in the future?

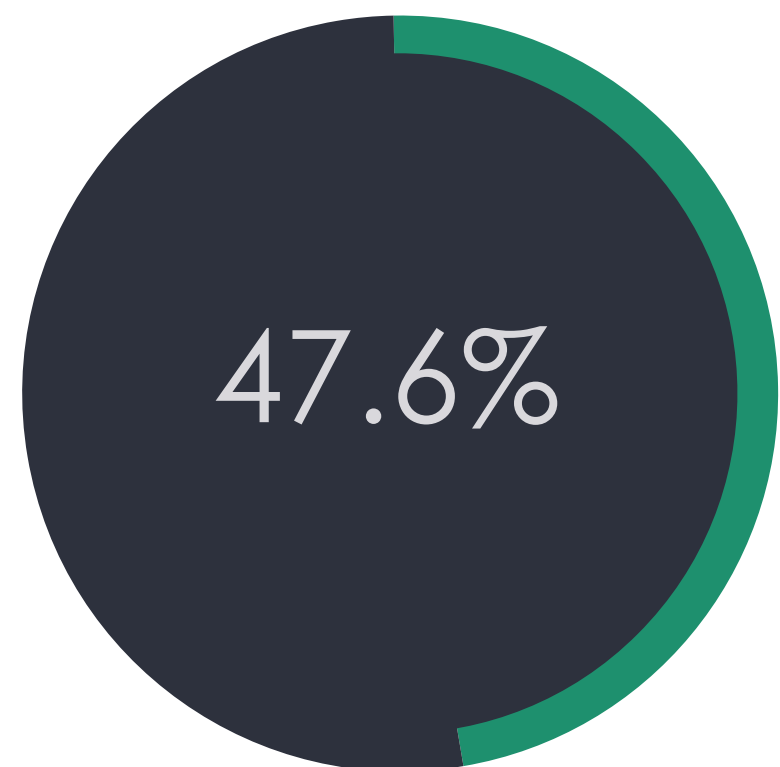


## Possession of Information Technology Security Systems



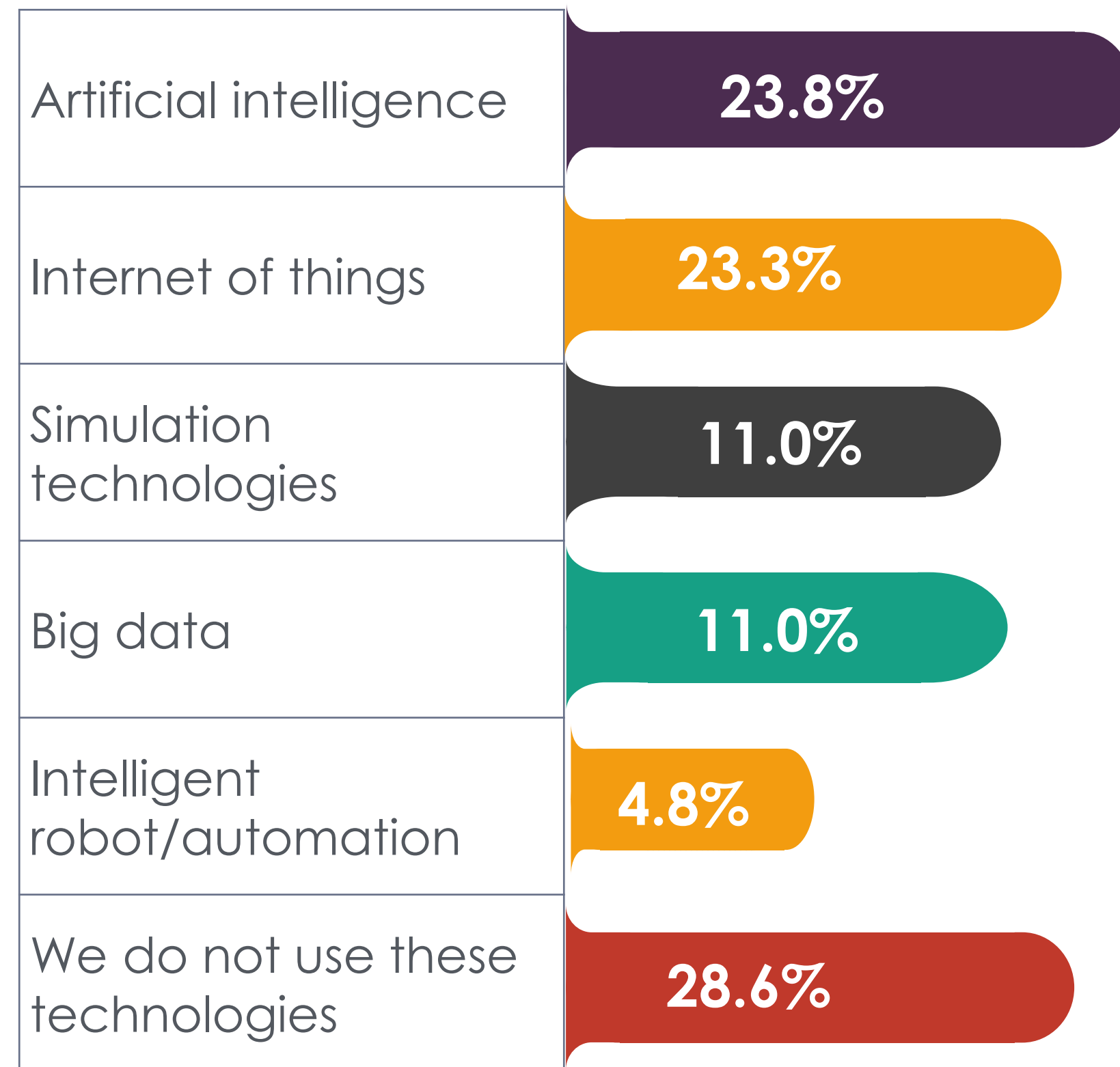
n:30

## Investment in Cyber Security Infrastructure



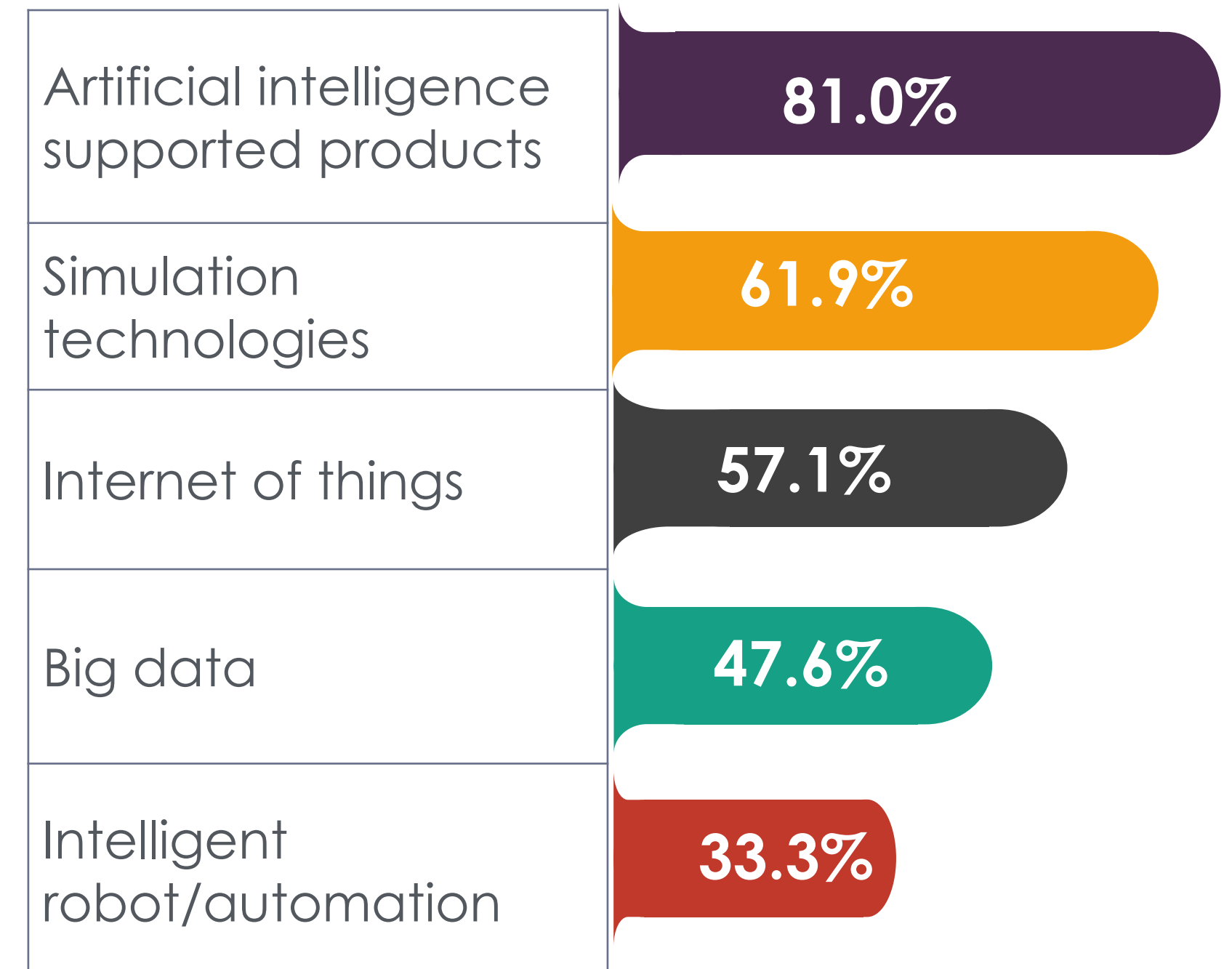
n:30

## Digital Technologies Used in the Enterprise



n:30

## Digital Technologies That Will Impact the Enterprises in the Future



n:30



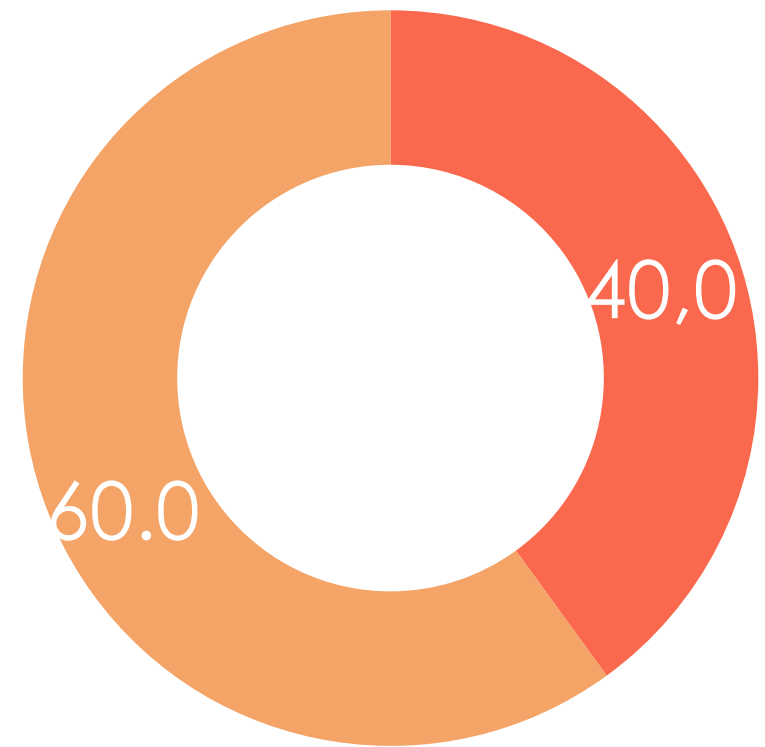


# Artificial Intelligence Perception in Education

- Do you plan to use artificial intelligence also in different areas in the future?
- Do you consider to use artificial intelligence at your enterprise in the future?
- Do you think that artificial intelligence technology will reduce the need for employment?

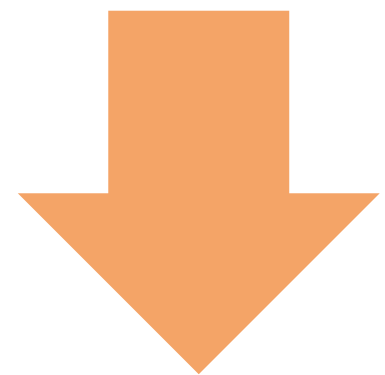


## Consideration to Use AI Technology in Different Fields in the Future



n:7

- I will use it at the same level
- I will expand my usage area



Management
Purchasing

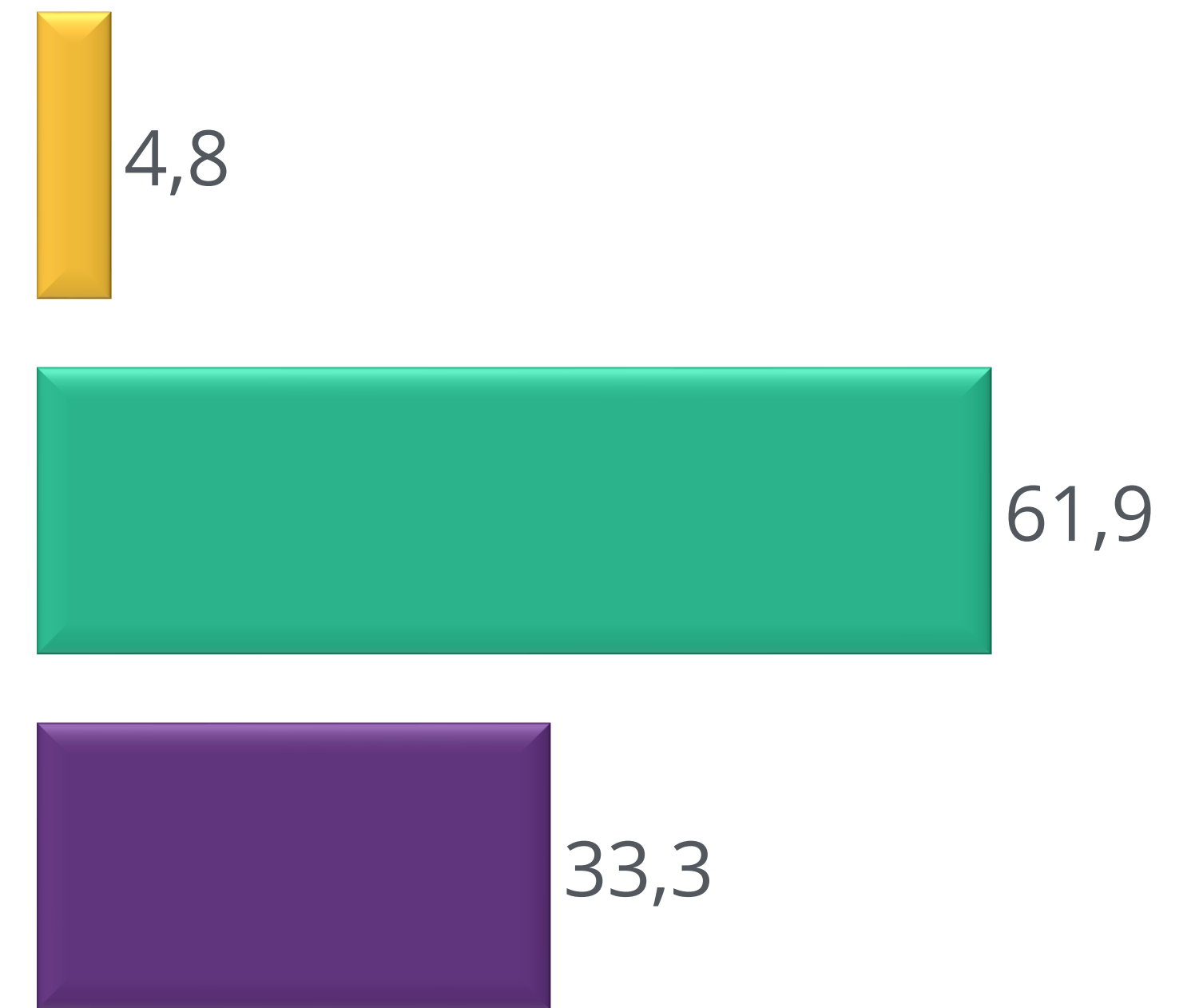
n:4

## Tendency to Use Artificial Intelligence at the Enterprise in the Future



n:30

## Considering that Artificial Intelligence Technology Will Reduce Employment



■ Neither consider nor not consider

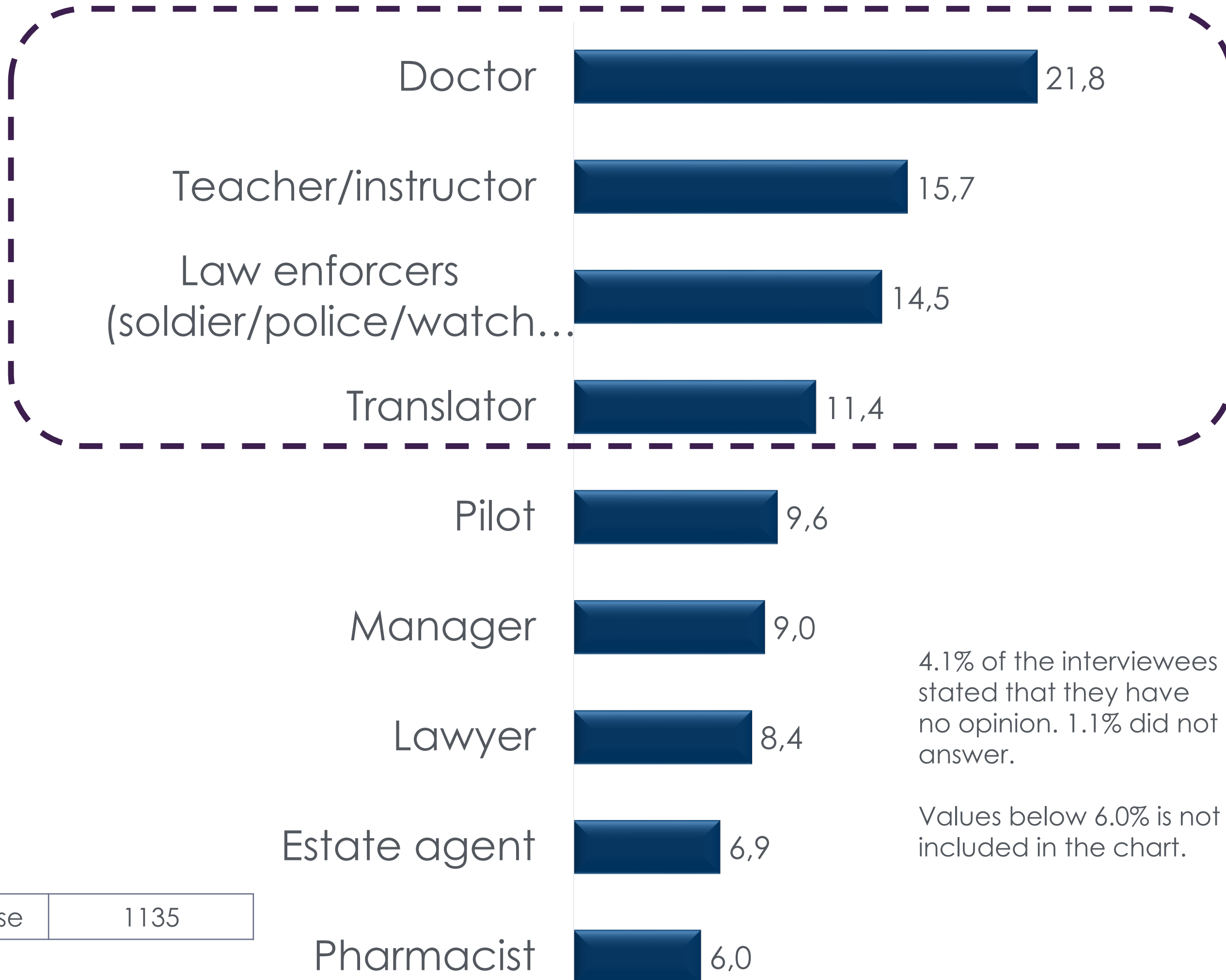
■ Consider

■ Definitely consider

n:30



### Professions that will Negatively Affected by Artificial Intelligence (%)



4.1% of the interviewees stated that they have no opinion. 1.1% did not answer.

Values below 6.0% is not included in the chart.

Base 1135

$$\text{Arf}(g) = \sum_{i=1}^n g(a_i) g(b_i) \in \mathbb{Z}_2$$

$a_i, b_i \quad i = 1, 2, 3, \dots, n.$



Ord. Prof. Dr. Cahit Arf  
Atatürk University

1958-1959 Academic Year Public Conferences

Can a machine think and how can it think?

